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INDIA RUBBER WORLD

CAOUTCHOUC — HEVEA BRASILIENSIS — DICHOPSIS GUTTA — GUTTA-PERCHA

Edited by HENRY C. PEARSON—Offices, No. 150 Nassau Street, NEW YORK.

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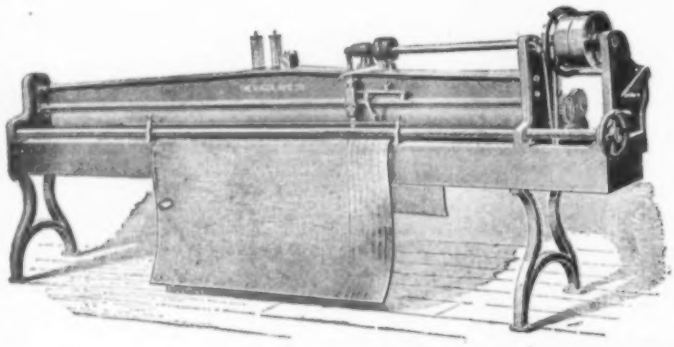

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CAOUTCHOUC. GUTTA-PERCHA.

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WHEN A FACTORY IS BIG ENOUGH.

A RECENT visitor to the United States from Germany, having his attention called to the business of a rubber factory which had come into existence and had attained a large rate of production, with every evidence of a profitable business, all since a former visit of the same gentleman, only a few years before, exclaimed in surprise: "How can you do such things in America? Our own people cannot build up business in that way." Germany has, by the way, afforded in recent years some remarkable instances of the rapid development of industrial plants—for instance, in the branches related to new applications of electricity. But the visitor here mentioned had reference more particularly to the old established industries, producing staple lines of goods, such as rubber footwear, mechanicals, and the like.

Without attempting any comprehensive treatment of this subject, it may be suggested that in our newer country, the development of which in so many respects has been rapid—unparalleled in the world's history, in fact—producers in every branch have been confronted with conditions for the meeting of which no precedents existed. Business has been undertaken, therefore, without regard to custom or experience, whereas the European manufacturer or the European merchant has always in mind, before engaging in a new undertaking, what others may have done before him, or what his predecessors might have done under the new conditions. The American tendency has been to take large risks, because large rewards were in sight, and there have been many cases, no doubt, where more conservatism would have been desirable. The German visitor's attention was claimed only by instances of marked success; he might have discovered that some equally marked failures had resulted, through the assuming of too great risks by new manufacturing concerns, ill equipped with either capital or experience.

There is one point which is too apt to be disregarded, even by successful manufacturers, and it may be illustrated by a recent remark of the manager of a new rubber company who are believed to have been more than usually successful from the day of starting. "We are still adding to our plant," said he, "and I believe that there is practically no limit to the amount of additional capital that could be attracted to our business if we were only to ask for it. But what I am afraid of is that we shall grow too much. The secret of our success up to date is that every man employed in the factory and offices, from the highest to the lowest, has all the work he can do. We have been able to expand our business from time to time because, with experience, our original force have been able to accomplish more work. But any further increase of the business will necessitate every head of a department taking on an assistant. In other words, for each man now in a responsible position, two would be needed. Then, whenever there might be a lull in business, a lot of men would have frequent resting spells, and then the rate of profits would show a drop, if for no other reason than on account of our high salary list. There is," this gentle-

man continued, "a certain stage in the growth of a manufacturing business where, with a certain amount of capital, there is just enough of work for everybody employed, and there is the point to put a stop, for awhile at least, to any further growth. At that point the ideal conditions exist for making profits. We have reached that point, and I shall be sorry to see any further efforts at the expansion of our works for a good while to come."

It is plain that every factory cannot be expanded indefinitely, and it would be a good thing for our rubber industry if more of those who have factories in charge shared the views of the manager whom we have just quoted.

FIRE LOSSES AND THE RUBBER TRADE.

IN despite of constant advances in the improvement of fire apparatus, and of efforts to increase the efficiency of fire patrols, aided by the vigilance of insurance companies to protect their risks, each year shows a heavier loss from fires, the rate of increase being greater than in the population or wealth of the country. The official figures show that the loss from fires in the United States during 1899 was $153,597,830—a startling total which surpassed by more than $23,000,000 that of 1898, and by more than $37,000,000 that of 1897. The fire losses in the United States and Canada during the first five months of the year have been as follows:

1898.	1899.	1900.
$49,030,200	$58,984,900	$82,017,900.

In New York city the showing has been relatively worse. For the boroughs of Manhattan and the Bronx the figures show a loss of $7,458,840 in 1899, against $4,155,199 in 1898. It is not surprising to learn, therefore, that an advance in insurance rates is being considered in many places. A study of fire and insurance statistics in Chicago for ten years past suggests that fire risks in that city have yielded little if any profit to the insurers. And a member of the New York fire patrol committee is authority for the statement that rates high enough to cover the present ratio of loss in that city would be practically prohibitive.

It is possible that the remedy for this undesirable state of affairs will be found under circumstances in which the India-rubber trade have a direct and deep interest. A distinct advance in the efficiency of fire departments in American cities followed the substitution of rubber hose or rubber line hose for the varieties previously in use. No matter what equipment is used in the way of fire engines and their other appurtenances, and no matter how well trained the firemen may be, there can be no effective fighting of fire with water without good hose, and it is safe to assert that the point upon the least insistance is made by city governments to-day is in the matter of good hose. Not long ago we quoted from the report of the fire department of the District of Columbia—in which is located the national capital:

> During the year just ended 2250 feet of hose was burst [in use], and will have to be replaced. This hose had been in service in the department for a number of years, and had become worn out.

The chief engineer in that department reported only 55 per cent. of the hose in use as in "good" condition, and he ascribed the exemption of the city of Washington from disastrous fires to "good fortune." But every city is not blessed with such "good fortune." The fire chief of Lynn, Mass., recently asked for new hose, as some of his present supply had been in use since 1893. A similar condition doubtless exists in every city. It exists in New York. In reporting a fire in one of the great buildings in this city, the New York *Sun* of June 12 said:

> The hose used last night was apparently in bad shape, for at five different points there were breaks causing sudden upheavals of water to the great discomfort of those on the street. One break was so large that the spray from it could be felt as far away from Frankfort street as Perry's drug store [more than a block]. There were three other breaks in Frankfort street and one on Park row.

How much of the loss occasioned by this fire was due to these breaks can only be conjectured. The best hose that can be made will wear out in time, but in view of the small cost of good hose as compared with the total expense of the average fire department, it is criminal to keep it in use too long—or to buy hose of a poor quality. Yet we recently saw a whole page of a newspaper published in a Connecticut town devoted to an unsavory squabble which had arisen in the council over an attempt to save a few cents a foot on a small order for hose, and similar disputes are reported from time to time in every part of the country.

It is evident that greater safety from fires must result, in part at least, from the use of better hose, and the opportunity exists for the manufacturers of a good article in this line to create a sentiment in behalf of their wares.

There is one other point that may well engage the interest of another branch of the rubber trade. It is suggested by a statement of the fire marshal of New York city: "After a number of rigid examinations, I am convinced that not a few of our fires are the results of either defective insulation or imperfect electric wiring."

WE ARE PLEASED TO CONGRATULATE M. ERNEST CHAPEL, formerly a leading rubber manufacturer in France, and more recently identified with the trade as secretary of the "Chambre Syndicale Française du Caoutchouc" and as the author of an important work on India-rubber, upon his appointment as *rapporteur* to the jury of the Paris Exposition. By the way, he has just written to THE INDIA RUBBER WORLD expressing his regret that more of the important rubber manufacturing firms in the United States are not participating in the exposition.

THERE IS A TEXT FOR MORE THAN ONE SERMON on the folly of cutting the prices of goods in order to effect sales, in the statement of a shoe jobber who is quoted on another page as saying: "It was easier to sell rubbers this last season at the full price than before at cut figures, and a great deal of satisfaction existed from the fact that the trade realized that all were being treated alike." If there ever was a staple article in trade it is rubber footwear in the United States, and the people who wear rubbers are able and willing to pay a fair price for them in a fuller sense than is true of almost any other article worn. Furthermore, it is doubtful if a cut in price by jobbers ever did add anything to the consumption of rubber shoes. It is a good thing that they have called a halt on price cutting,

and they doubtless are wondering now why they ever began selling such goods at prices which made profits impossible.

IT IS OF INTEREST TO KNOW, just now when the pessimists are predicting a very dull summer, that many mechanical goods concerns not only are busy, but find it difficult to get enough skilled help in their factories. It simply proves that the general business in mechanicals is good, and that those who are dissatisfied are contrasting the present safe business with the abnormal demand that was brought about by the era of high prices through which we have recently passed.

THE ADVENT OF "RHEA RUBBER" AND "VELVRIL" indicates a new line of experimenting in the way of what might be called substitutes that is not only very interesting but should be prolific in good results. Exactly what the two substitutes named will develop is not yet apparent, but the line of work must appeal to those familiar with the rubber manufacture, more than does the attempt to turn any kind of oil into a substitute for rubber. The former of the two substitutes is made from a gum that has rubber like qualities, and that is already largely in use. There is no doubt that there are many of the pseudo rubbers, and indeed many of the cheaper grades of real rubber, that, by proper manipulation and chemical treatment, may be brought to a far higher degree of excellence; African rubbers of the lower grades are already thus treated and made of more value. The velvril substitute is one of a number of products produced from cellulose, and there is no doubt but some of them will eventually displace rubber in certain lines, even if they are not useful in combination with rubber as are ordinary substitutes.

THE NEW ORDERS FOR OCEAN CABLES.

AS reported in the last INDIA RUBBER WORLD, the Safety Insulated Wire and Cable Co. (New York) have obtained an order from the War Department for what is, as compared with the production of submarine cables in the United States hitherto, a very important order. This cable was especially designed by General Greely for use in the Philippine islands by the United States army signal corps. The total length is 600 miles of deep sea type and 25 miles of shore end type. The deep sea type is composed of a conductor of seven strands of copper wire, over which is placed a seamless covering of Pará rubber compound, which is then covered with tape, jute, and steel armor, over which is placed a covering of jute, tar, and lime. The shore end type is similar to the deep sea, except that it has an additional heavy armor. The cable is now being turned out at the rate of ten miles per day, the first fifty miles being already completed. It is expected that when the new plant of the Safety Company, which is now being erected at Bergen Point, N. J., is completed, submarine cable of any design or length may be turned out as fast as at any factory in the world. It will be remembered that a year ago this company shipped upwards of 200 miles of cable to the Philippines, the satisfactory character of which has influenced the government in placing the above order.

W. R. Brixey, manufacturer of "Kerite" insulated wires and cables (Seymour, Conn., and New York), has been awarded a contract, by the signal office of the United States war department, for two military cables, to be made and laid across Norton sound, Alaska—one 132 miles in length from St. Michaels to Cape Nome, and the other, 55 miles, from St. Michaels to Unalaklik. The order was placed on May 26, and the cable is required to be laid and in working order by September 7, 1900. These are to be seven-conductor cables, of No. 24 B. & S. copper wire stranded and insulated, first with a layer of pure Pará rubber, and then with "Kerite" compound (which consists principally of Pará rubber), to a dimension of $\frac{1}{32}$ inch, then covered with "Kerite" tape and a bedding of jute to receive sixteen No. 12 B. & S. armor wires. Outside of these armor wires are to be two reversed layers of jute. The cables are to be manufactured at Seymour, Conn., in lengths of ten miles, placed on reels and transported by rail to the Pacific coast, and there loaded in the hold of a steamer in one piece.

THE SNOWDRIFT FOOTWEAR CO.

THE specialties known as "Snowdrift" shoes, have already been described in THE INDIA RUBBER WORLD, that is, in a measure. The goods are made up chiefly in the form of either high-cut or low-cut ankle goods, with specialties in the way of motormen's shoes, police shoes, short boots, children's school shoes, golf and tennis shoes. The goods, while having rubber soles and heels, and in some cases a low upper of rubber, are, as a rule, furnished with an upper of closely woven waterproof felt, of so fine a quality that it really has a very attractive appearance. None of the Snowdrift goods are made to wear over leather goods, the shoe being made to wear exactly as the leather shoe is. The accompanying illustration shows the plant at Saugus, Mass., where, by the first of August, the Snowdrift goods will be manufactured. Machinery has

FACTORY AT SAUGUS, MASS.

already been purchased for this work, consisting of two 100 horse power Cunningham boilers, a 200 horse power Brown engine, a large washer, four grinders, a soling and an upper calender, dry heaters, and other rubber equipment, which will shortly be in place. John Randal, an experienced rubber shoe man, will be in charge of the works, as superintendent, while Henry L. Pike, formerly of the shoe jobbing house of Converse & Pike (Boston), will act as general manager and selling agent, with an office at No. 183 Essex street, Boston. Orders have already been placed for a great many of the Snowdrift goods, and it looks as if the new company would not only be able to build up a fine business in their specialty, but from the expert opinions that have been given of their patents, will be able to protect themselves after the business is built up. The officers of the Snowdrift Footwear Co. are: Luther G. Shaw, president; Charles F. Hill, treasurer; T. S. Very, vice president and secretary. The above officers, together with H. C. Richardson and J. Tinkham, form the board of directors. Messrs. Very and Richardson are the joint inventors of the Snowdrift goods.

THE Peruvian minister of public works, Dr. Carlo Besadre y Forero, according to a press dispatch from Lima dated June 17, held an important conference on the day before with the *concessionaires* of rubber lands in Peru, "with a view to reaching uniformity of system in mensuration and delimitation."

LETTERS TO THE EDITOR.

RUBBER TRADE PROSPECTS AT OMAHA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At this writing, the conditions in prospect for a large trade for the coming fall and winter are of the very best. In the agricultural part of our territory, which is that east of the Rocky mountains, crops are as good, if not better than ever before, at this season of the year. In the mountains and mining country, trade seems to be very good. Collections have been very fair during this season, and we know that the people are able to buy and pay for any sort of merchandise they may want. The cattle, sheep, hog, and other stock interests have flourished during the past two or three years more than for many years. All the sellers of rubber boots and shoes, mackintoshes, rubber and oiled clothing, etc., ask for is suitable weather—in other words, bad weather. The last two winters, as you no doubt know, have not been of the kind that sellers of rubber goods like, last winter being exceptionally warm and mild; therefore quite a good many warm lined rubber goods of all kinds were carried over. While the presidential campaigns are always more or less disturbers of the business serenity of the country, we do not expect any slump in business in this part of the country this summer and fall on account of the presidential election. The people of the West have been treated to so many sensational things during the past two or three years, that we believe they will not pay much attention to the presidential election. In other words, they will not let it interfere with their business.

Z. T. LINDSEY.

Z. T. LINDSEY.

Omaha, Neb., June 11, 1900.

PLANTING RUBBER "IN THE OPEN."

TO THE EDITOR OF THE INDIA RUBBER WORLD: In your issue of June 1, under the head of "Rubber Planting Experiences in Nicaragua," George L. Bittenger, in a letter dated Pearl City, Nicaragua, April 9, states that "a great deal has been said *pro* and *con* in regard to planting rubber in the sun, but the trees grow more rapidly when planted in the sun, and it is quite evident that they are more healthy and produce more rubber. Take trees planted in the shade, as a great many natives have done, and you will find them a failure."

I also note that G. G. Cossitt is quoted under the same head as endorsing the method of planting rubber in the open, where he says "everything was cut down and burned off in April on the Tennessee plantation." While Mr. Bittenger may be right about planting rubber in the open, and while I know Mr. Cossitt to be a man of large experience and good judgment, having been associated with him for nearly a year at Pearl City, Nicaragua, in the investigation and study of the planting of rubber trees, I question whether rubber will do well planted in the sun, and it appears a contradiction when Mr. Bittenger states that rubber trees planted in the shade are a failure when all the rubber exported from Central America in the last forty years has been taken from trees grown in the shade of the thick jungle of those countries. My method of planting rubber in Costa Rica has been to cut out the under brush and thin out the timber enough to let in plenty of light and air, exposing the tops of the trees more or less to the sun, while the trunks of the trees are shaded. The rubber cutters tell me they do not get much milk from trees grown in *branier*, which is a growth of thick bush not over 6 or 8 feet high, leaving the trunks of the trees mostly exposed to the sun.

There is also a rubber plantation in Honduras, the trees now being 8 or 10 years old, which yields little or no rubber, the trees having been planted in cleared land, and this will apply especially to locations where there is a decided dry season of several months each year. The bark of the rubber tree is tender and quickly affected by the sun. The milk contained in the bark is composed of a certain amount of water which naturally dries out when exposed to the sun, leaving the milk so congealed in the bark that it will not flow freely when the bark is cut.

Mr. Bittenger does not show that the planting of rubber on cleared land is a success, excepting that trees grow faster in the sun, with which I agree, having learned this from experience, but I question whether rubber trees planted in cleared land will be a success in regard to the flow of milk when they come to maturity. There are good and substantial reasons for believing they will not be a success.

I bring this question up, believing it to be of interest to rubber growers in general, and I will be glad to hear through your valuable paper from Mr. Bittenger, Mr. Cossitt, or any planter who can show that trees will yield as much or more rubber when the trunks are exposed to the sun as when grown in the shade.

L. C. SINGER,
Assistant Manager of the Indiana Rubber Co.

Goshen, Ind., June 8, 1900.

THE ENGLISH RUBBER BALL TRADE.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We note your remarks on page 238 [issue of June 1] regarding our manufacture of rubber balls with the series of British generals at present engaged at the Cape. We think you are perfectly right in saying that the notion was a good one; results have amply confirmed it, for after only a few days the whole of the huge stock of specially made transfers was used up, and we had immediately to order a new set. The idea, arising in the head of our managing director, Mr. Coops, has proved additionally profitable to the company, inasmuch as this special series was sold at a higher price than the usual standard. You are only wrong in one respect: Our German competitors cannot, as they have cleverly done so many times, profit by this idea, as the designs are registered at Stationers' Hall, and consequently protected as much as a patent.

THE ECCLES CYCLE AND RUBBER CO., LIMITED.

Eccles, Manchester, England, June 9, 1900

Is it proper to call a massage establishment a rubber plant?—*Boston Commercial Bulletin.*

THE MANUFACTURE OF RUBBER BELTING.

By J. S. McClurg.

WITH a belt, as with a building, the foundation is one of the most essential features. Hence, as the duck is the foundation of any good belt, it should be discussed first. The kind of duck selected should always be determined by the quality and grade of belt to be made. Presuming that the order calls for a first grade belt, first select a 30 or 32 ounce duck to insure the proper strength. There are many qualities of duck on the market, all of which are good, yet some are infinitely better and more preferable than others. The best is a firm closely woven fabric, smooth and free from knots and warp ends. This has more strength and requires much less friction than the loosely woven kind, which is quite an item in the cost of production. In the cheaper grades of belt, for threshers and other light work, lighter ducks, from 22 to 28 ounces, may be safely used with good results. All duck absorbs more or less moisture in shipping and storing, ordinary sized rolls absorbing from 5 to 8 pounds. This must be eliminated, which is best done by passing the duck over a series of iron rolls heated by steam to a sufficient temperature to evaporate this moisture and render the fabric perfectly dry before sending to the friction calender. Indeed, experience has taught that the friction will spread better and more evenly if run while the duck is still warm from the dryer.

After the duck has been selected and prepared for the calender, comes that very necessary requisite of any belt, the friction. The Pará rubber used in the compound, after having been thoroughly washed and sheeted, is placed in a dry room where the temperature should be from 80° to 100° F. There it should remain until perfectly dry and seasoned, and free from all semblance of green spots. The African, Central, and Ball gums should also be well washed and dried out by the dry room process. Never under any circumstances should it be attempted to dry out gum on a hot mill, or to remove the greenness by such radical measures. It is bound to destroy the life of the rubber to a considerable degree and, besides, many defects in finished goods can be attributed to this unnatural means. The various compounds should also be well dried out before using, as all the moisture possible should be eliminated from every batch of rubber for whatever purpose it is used. This done, take the Pará and thoroughly break it down on a warm mill—not too hot—until it becomes smooth and even, then add African, Small Ball, Paste, or whatever other gum that seems best. Gradually add the compound until the batch becomes thoroughly mixed. Most manufacturers do not grind their friction after mixing, but if they will try it and give it a fair test, they will find it an improvement over the old method. After the compound has been batched, it should be piled up in a dry place and left for at least three weeks to dry out and harden; four or five weeks is better if the stock is large enough to permit it. This point is very essential, and if manufacturers will try it and note the test carefully they will find that, the dryer and firmer the batch becomes, the better results they will secure.

Now that the duck has been dried and the friction has become dry and well seasoned, the calender should be warmed up to the temperature required by the compound; then take the batches and warm them up on a mill as near to the temperature of the calender as possible before feeding into it. Then feed the warm batch into the calender until the proper heat and consistency have been obtained, and then start the duck through the calender. If all these details are observed carefully, the duck will come out with a smooth even coat of friction which should weigh from ⅓ or ⅔ pounds to 2 pounds per running yard of duck, according to the quality of the compound; this, of course, includes both sides of the belt.

Next take the frictioned roll to the cutting machine, where the selvedged edge is removed, and the duck cut into the widths required by the different sized belts. This machine should have numerous adjustable knives which can be easily and speedily set to any position desired.

All the preliminary steps having been gone through, comes the making up of the belt. The duck, frictioned and cut into proper widths, is taken to the belt table or to the belt machine, as the case may be. In making small belts and, in fact, all sizes up to 12 or 16 inches wide, the machine made belt is equal in every respect to those made by the old hand roller process and much cheaper, especially where the machine has capacity for two or more belts at one time. In making a belt with an odd number of plies, cut the center or core the width the belt is to be; then cut the first cover a trifle over twice as wide as the center, so that when it is doubled around that center the two ends will just butt together, making a close even joint. Continue in the same manner with each succeeding layer until the desired number of plies is reached. In starting the belt take the first cover and lay out on the belt table, then take the center or core and lay it on top of that piece a little to one side of the middle of it; now bring the two ends of the cover over so that the edges will butt together, then roll them down firmly with the roller so that the plies become thoroughly pressed together. If any little blisters or bubbles appear it is due to air confined between the plies. Prick these with an awl or any pointed instrument and roll down to a smooth even surface. The belt is now three plies. The next cover is put on the same way until the desired number of plies is secured. If, however, the belt is to be of even plies, say 4 ply, 6 ply, or 8 ply, instead of cutting a center or core for the belt, which makes the odd ply, simply take the first cover and, doubling the two ends together so that they meet at some distance from the middle of the belt, roll down, as in the case of the former. This is to bring the seam near one edge, as it makes the belt stronger and the seam is less liable to open. In the regular unstitched belt the last cover put on is cut from a roll of friction duck which has had the rubber cover run on it by the calender; thus, when the last ply is rolled on the belt the rubber cover is also in place and the belt is ready for curing. If it is a stitched belt, take it directly from the table to the sewing machine and stitch with heavy linen or flax thread, then send it to the calender and have the rubber cover run on it. Every belt table should have a stretcher attached to one end of it, so that as much stretch as possible can be taken out of it before curing. When the last layer of duck has been put on, the seam where the two edges butt together, being naturally a weak spot, should have a strip of good rubber placed over it to strengthen it and give it a smooth appearance. This strip should be about ½ inch wide. The rubber cover or outside coat of the belt is as paint to the outside of a building, to protect it from moisture, decay, and the ravages of climate and

atmosphere. The addition of a few well ground rags to the cover compound will add to its toughness and wearing qualities. It is a lamentable fact that the very close competition in trade has rendered it impossible to give to a belt the quality of cover it should have. If the price would justify a gum cover of considerable purity the trade would find better satisfaction existing among consumers and the life of belting would be doubled. The belt is now made and rolled up on a shell and is ready for curing.

Before putting into the vulcanizer, take a damp cloth and wrap around the outside of the roll, making it about three or four thicknesses; the edges of the belt should be pricked with an awl about every two inches along the entire length of the belt to permit all air to escape while the curing process is going on. This will save the belt from blisters. It is very important that the exact cure for the compound which has entered into the composition of the belt should be known and followed carefully. Here is one of the most important features of the belt making, because if cured a little too much it can never be remedied or restored; therefore, it is best to make up a few small samples of belt, using the compound decided upon, and test the cure until the best one is determined. Having done this, one can cure the roll with safety and an assurance that it will be right. Having removed the belt from the vulcanizer, it is now ready to be plated, stretched, and finished. A most convenient belt press is about 25 feet long, with an hydraulic stretcher attached to one end of the plate. Now take a punch and puncture one end of the belt with several holes; then place a ½ inch iron plate on each side of the belt and just the width of it; bolt the two pieces together through the holes in the belt. This will serve for a grip to which the stretcher may be attached. Next pass the belt to the hydraulic press. First lower the bottom plate, then pass the end of the belt through it and attach the grip to the stretcher, also secure the belt by the vise at the opposite end of the press. The pressure is now turned on the stretcher, and the slack in the duck is removed. This having been done, open a valve of the press while the hydraulic pressure raises the lower plate and firmly presses the belt against the upper plate. These plates are heated by steam to sufficient heat to give the belt a smooth polished surface, the pressure serving to force friction through the duck thoroughly and render it compact and even. When this length of belt is finished, lower the plate again, and, drawing the belt through, another press length is plated in the same manner, until the roll is completed. The two ends of the roll are then trimmed off evenly and the belt is finished.

In making flange and conveyor belts two molds are constructed each the same length as the press and turned down to such shape as the flange desired. One mold is placed on each edge of the belt while a strip of pure gum is also placed there; thus the mold gives to the flange its shape, while it is being vulcanized to the belt. The manufacture of the thresher belt has proved to be one of the most difficult tasks in belt making. Most firms figure on at least 10 per cent. of their yearly output in this line being returned to them in a defective condition. The writer has taken special pains to investigate this matter and can positively state that in nearly every case the frayed out belt has not become so from any defect in manufacture or material, but through an injudicious use of the belt on the part of the users. In most cases the thresher is not set up in line with the engine or motive power, consequently the belt will not remain on the pulleys; however, instead of truing up the engine, the belt is forced to remain in position by driving a stake or bar into the ground while the exposed portion rests against the edge of the belt; this constant friction gradually wears through the belt edge, opens it up, and, once opened, the atmosphere, moisture, etc., tears it to pieces. The only remedy for this evil appears to be in the banding together of the manufacturers with an agreement to accept no returned belts of this kind.

RUBBER BELTING FOR GRAIN ELEVATORS.

A FIRM engaged on a large scale in the erection of grain elevators—the John S. Metcalf Co., of Chicago—have favored THE INDIA RUBBER WORLD with a copy of the specifications upon which was supplied to them the rubber belting for the elevator recently completed at Newport News, Va., for the Chesapeake and Ohio railway, as follows:

SPECIFICATIONS: All of the above belts shall be first class in quality and equal to the best of such goods in the market. All duck used in their construction shall be of the best quality and weigh not less than 32 ounces to 9 square feet. The several plies shall be thoroughly cemented together with the best quality of Pará rubber compound, making a friction between the plies, so that a strip 1 inch wide will not pull more than 12 inches in ten minutes, with a pull of 15 pounds. This friction when pulled apart shall show that there is ample rubber in its composition to insure its lasting quality, and to show a long clinging fibrous friction. No butt seams shall be made in the outside covering and in the conveyor belts the joint of the outside ply of duck shall not be more than 1¼ inches from the edge of the belt. The outside covering to be a heavy coat of the very best Pará rubber covering material, evenly put on and properly vulcanized and finished. The belts must be straight, well stretched, and pressed. A sample not less than 3 feet long and 22 inches wide must be submitted to the engineer for approval, before the order is placed. This sample to be held by him to compare with the belts when they are delivered, and if they are not equal to the sample they will not be accepted. The manufacturer of these belts shall certify in writing to the engineer that all belts are fully up to the standard specified.

They write, also: "Before we closed this order we investigated a large number of belts, testing them all thoroughly, and we went into it so carefully that we are now able to tell a good or poor piece of belting by testing it in the manner mentioned in the above specifications."

* * *

TO THE EDITOR OF THE INDIA RUBBER WORLD: It is impossible to estimate the amount of rubber belting that would be required in an elevator of given storage capacity, or even daily capacity for handling grain. The difference in design is principally responsible for this, although in a measure it is due to the fact that some elevators are equipped with more or less cleaning machinery, while others are simply built to store grain.

With regard to the quality used, the growing tendency among the large elevators at terminal points is to use cheaper belts and the small country houses, up to this season, a better grade than heretofore. The reason of this is due to the fact that the large elevators are generally built by contract, and the competition has been so keen that contractors, in their eagerness for work, have cut down the quality furnished, to the danger limit. The small elevators started in using the cheapest article that they could purchase, but owners had their eyes gradually opened to the fact that it was poor economy. This year, however, building material is so much higher that they are endeavoring to keep the cost of their houses within their capital by scanting wherever possible, and the quality of belting naturally suffers.

For large elevators the belting is generally purchased by the contractors direct from the manufacturer. Country houses,

however, as a rule, look to the elevator supply dealers at the more central points, comparatively little being purchased from hardware dealers in their own towns.

Belts as a rule last for years and are not, comparatively, an important item of expense.

The majority of buckets used are not patented, although there are two or three very popular patented buckets on the market.

WELLER MANUFACTURING CO.

Chicago, Ill., May 7, 1900.

* * *

AS for the quantity of belting required for a large elevator, the following is a statement of the order given for the equipment of an elevator of 1,000,000 bushels capacity:

Elevator Belts:

8 belts, 365 feet each, 22 inch, 6 ply rubber, punched per template 13 inch centers.

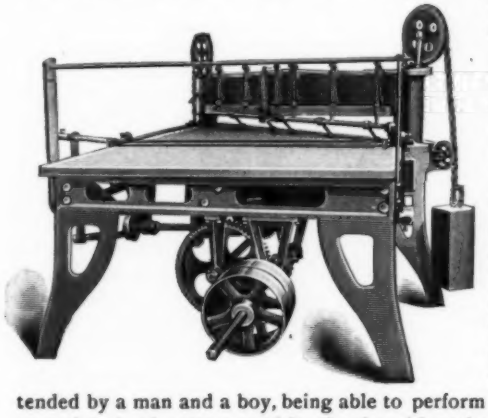
Conveyor Belts:

4-116 feet each,	30	inches,	4 ply.	1-1432 feet each,	24	inches,	4 ply.
2-338 " "	36	"	5 "	1-1631 " "	40	"	5 "
1-1446 " "	40	"	5 "	1-1586 " "	24	"	4 "

With the order was supplied 14 quarts of rubber cement.

SMITH'S BIAS CUTTING MACHINE.

THE Bias Cutting Machine, invented and patented by Louis Smith, and of which an illustration is given herewith, has been used successfully for several years past in the dry goods trade. Recently the inventor has turned his attention to the introduction of this machine into the India-rubber industry, with the result that it has been found to give satisfactory results in the cutting of fabrics for hose, tires, mackintosh bindings, and the like. It cuts out the work accurately, besides effecting a great saving in the labor cost, one machine, attended by a man and a boy, being able to perform the work of several trained cutters working by the old method. There is likewise a saving of space, the Smith machine, being fed automatically from rolls, rendering unnecessary the use of the long tables which are required in cutting out tire and hose fabrics by hand.



The main feature of the machine is the feed mechanism, which consists of a slide underneath the fabric to be cut, and a feed bar on top, which grips the fabric along its entire width, managed so that the more resistance offered to the fabric the tighter the feed bar holds. In operation the slide and feed bas move forward together; at the end of the stroke, a presser bar grips the fabric, the feed bar releases its hold and returns to back end of stroke, where it again takes hold of the fabric, a strip being cut off in the meantime. All strips are cut a uniform width and are perfectly parallel.

The machine is now made in three sizes, with capacity as follows: The small machine cuts 24 inch stock into widths of 6 inches and less. The medium size cuts 44 inch goods into widths of 6 inches and less. The large machine cuts 66 inch stock into widths up to 18 inches. This machine is now in use in some of the largest American rubber mills producing the classes of goods above referred to. Mr. Smith has made arrangements whereby the sole manufacture of his machine hereafter will be in the hands of the Farrel Foundry and Machine Co., Ansonia, Conn.

GERMAN RUBBER IMPORTS AND EXPORTS.

OFFICIAL reports from Germany indicate a continued growth in the consumption of crude India-rubber and Gutta-percha. The figures for the first three months of 1900, as compared with the corresponding months of previous years, show the following results:

WEIGHT (IN POUNDS.)

	1898.	1899.	1900.
Imports	5,139,860	5,960,680	8,404,440
Exports	1,474,000	1,823,140	3,112,120
Net imports	3,665,860	4,137,540	5,292,320

VALUE (IN MARKS.)

	1898.	1899.	1900.
Imports	12,616,000	15,173,000	21,393,000
Exports	2,814,000	3,729,000	6,366,000
Net imports	9,802,000	11,444,000	15,027,000

These tables show the cost to Germany of her net imports of rubber to have cost an average of 5.88 marks per kilogram in the first three months of 1898; 6.02 marks in 1899; and 6.25 marks in 1900.

The imports and exports of rubber goods by Germany for the first three months of 1900 are officially reported as follows, the figures denoting value in marks:

Imports.	Classification.	Exports.
9,000	Hard Rubber in Mass	115,000
823,000	Rubber Threads and Sheets	719,000
569,000	Coarse Soft Rubber Goods	7,080,000
361,000	Fine Soft Rubber Goods	852,000
52,000	Hard Rubber Goods	2,118,000
7,000	Toys of Soft Rubber	(*a*)
998,000	Fabrics Coated with Rubber	1,226,000
20,000	Elastic Fabrics and Hosiery	74,000
116,000	Hemp and Rubber Hose	413,000
246,000	Rubber Proofed Clothing	448,000
.....	Unclassified Rubber Goods	37,000
3,201,000	Total, German Money	13,072,000
£160,050	Total, English Money	£653,600
$800,250	Total, American Money	$3,268,000

(*a*) Included in "Fine Soft Rubber Goods."

[NOTE.—In computing values £1 is estimated at 20 marks and $1 at 4 marks.]

The imports of rubber goods during the first three months of 1899 reached 2,736,000 marks in value and the exports 13,607,000. There is thus shown a considerable increase in imports and a slight falling off in exports.

RUBBER BOOTS AND SHOES (WEIGHT IN POUNDS.)

	Imports.	Exports.		Imports.	Exports.
Great Britain	10,780	70,620	Russia	26,400	....
Belgium	....	4,840	Other countries	7,040	44,660
France	....	18,040			
Switzerland	....	4,620	Total	101,420	142,780
Aust.-Hungary	57,200	....	Worth (marks)	304,000	389,000

The absence of the United States from this list is due to the fact that American footwear sold in Germany is not always shipped direct.

A RECENT telegram from Pará announced the loss of the national steamer *America*, near Araty, on the upper Amazon, The captain and ten others were drowned.

THE INDIA-RUBBER INDUSTRY IN GREAT BRITAIN.

By Our Regular Correspondent.

IN the very front rank of British rubber manufacturers must be placed the old established firm of William Warne & Co., Limited, whose goods, especially those of red rubber, have such a world wide reputation. The works, which have long been at Tottenham, near London, are about to be moved to Barking, a less crowded locality from a residential point of view, and one where any little annoyance arising from smells is less likely to bring down obloquy upon the directors' heads. It has long been one of the goals at which other firms have striven to produce red goods, notably tobacco pouches, of the same high quality turned out by Warnes, but somehow or other, such ambitions have met with but partial success. It is generally supposed that there is a hidden virtue in the antimony used by this firm which is non-existent in other brands; at one time the firm manufactured their own antimony, though I am not sure that this is the case at the present time. But whether or not, I am inclined to think that the difference in the appearance of the rubber goods is due to something more or less in the nature of a trade secret in the manufacture, rather than to any specific quality of the coloring material. In Mr. J. K. Burbridge, son of the director of that name, the firm has a chemist of ability, and one who is able to satisfy himself on scientific grounds of the suitability of the various chemicals bought for the purposes to which they are put, and the firm is thus enabled to steer clear of certain pitfalls which are apt to strew the path of those whose business acumen is untempered by an intimate knowledge of cause and effect. There are many branches of our trade where the Germans think, and no doubt with much reason, that they can teach us a thing or two, but a remark which was made by a German manufacturer recently in the course of a conversation I had with him showed me that our Teutonic competitors are not at all satisfied with the progress they have made so far in imitating Warnes' goods. The firm probably do the largest trade in elastic thread of any English house, a specialty being the red mineralized thread, and to mention their other products would be merely to make a list of practically everything which is made of rubber, except balloons and certain other goods made from cut-sheet rubber.

WARNE & CO., LIMITED.

THE announcement by this firm of a dividend of 9 per cent. and the carrying over of £10,000 to reserve must be taken in evidence of the prosperity of the trade during the last twelve months. This firm, it may be said, partakes of the character of a private limited company, the shares being nearly all held by members of the Birley family, to whom the business has belonged since Mr. Charles Macintosh took out his patent in 1823. This statement, however, as to the proprietary needs some little modification, as recently a new director, Mr. F. H. Smith, has acquired an interest in the firm, and, although his previous knowledge of the trade, from all accounts, seems to have been infinitesimal rather than plenary, his abilities in the way of management come under quite a different category. The dividend announced by this firm may be taken as an index of the state of the trade generally; though it is difficult to go beyond supposition in the matter, because there are many important firms which do not publish to the world at large the results of their working. The four large mills in which the Messrs. Macintosh conduct their business were in former times utilized for cotton spinning purposes, and although it has undoubtedly always been an advantage to the firm to have plenty of room at disposal for extensions, the plan of the works as at present existing is not an ideal one, necessitating, as it does, the expenditure of a good deal of time and labor in moving material from one department to another. The firm have been exceptionally busy of late, especially in the textile department, where the completion of government orders has made it imperative to work night as well as day. As one of the principal producers of playing balls of various sorts, this is also a busy season with them, for, despite of ominous predictions to the contrary, the game of lawn tennis continues to be as popular as ever. Although it is true that garden party tennis has now for some years been in a moribund condition, the number of first class players connected with clubs was probably never so great as at the present time, and this class of player uses up a good many more balls than do the less ardent devotees of the game. I hear that the Macintoshes have never been so busy with this department as at the present time, so there is no need to say anything further on the subject of the continued popularity of the game, though it cannot be denied that golf and cycling have affected it to same extent.

CHARLES MACINTOSH & CO., LIMITED.

FROM all accounts the bleached Gutta-percha ball does not appear to have achieved much success. I must say that when I heard of the patent being taken out a few years ago, I felt rather dubious as to the effect which chloride of lime would have upon a substance so easily oxidizable as is Gutta-percha, and from what I hear from players my suspicions seem to have been well-founded. Quite probably oxidation takes place, as the balls are reported to lose their "bounce" and to deteriorate rapidly in wet weather. The difficulty of getting a satisfactory white paint does not seem to have yet been got over, and really I don't quite see how it can be expected that a paint can be found to stand the abrasive action of golf clubs. Although the general price of golf balls stands now at a shilling each, a special brand made by the Silvertown company is sold at 21 shillings per dozen, which is rather too stiff a price for the majority of players. I hope to have something to say concerning the ball containing oxolin in a future issue, though I must confess that so far oxolin has not commended itself to me as a particularly valuable substitute for rubber or Gutta-percha.

GOLF BALLS.

THE fact that increased dividends have been paid by so many rubber firms recently may not inaptly form a peg on which to hang a few observations as to cause and effect. From some remarks which were made by a subordinate officer of a firm, it would seem that it is easy to attach too much prominence to the part played by the directorate, and to underestimate the services of labor. No doubt there is something in this after making all allowance for the tendency of the employé to indulge in a grumble at his position and prospects. In the case of old-established firms, and especially those where the processes carried out are of an intricate nature, taxing the brain as well as the muscle of the employé, it would be impolitic to ignore the part which labor plays in the bringing about of satisfactory results. As a rule a vengeful Nemesis in the form of dismissal overtakes those who are convicted of laxity in the performance of their duties, but in the case of long and faithful service how often does one call to

CAPITAL AND LABOR.

mind the adage of Juvenal, *Probitas laudatus et alget*. It is open to a good deal of doubt whether the working man of the future, in spite of all the fuss which is being made about technical education, will really be as much a master of his trade as is the workman of to-day, and as, despite the most consummate ability of a board of directors, a great deal must always depend upon the efficiency of labor, it is an important point for a firm to consider how far it is in a position to fill the parts held by intelligent foremen and others when such become vacant. Though our knowledge of rubber chemistry has increased greatly of late years, there are still many points relating to the composition or quality of rubber goods in which one is more likely to get a correct opinion from a foreman who has spent his life in the trade than from the analyst of repute whose scientific knowledge is apt at times to prove sadly deficient, if indeed, it does not lead him to entirely erroneous deductions. Many instances of this could be given, but space does not permit of further reference to the subject.

TEXTURE CUTTINGS.

AN English firm who recently bought a consignment of this form of waste rubber from America tell me that they are very dissatisfied with the quality of the rubber they have obtained; in fact they expressed the opinion that it was not rubber at all, but some sort of oily matter. I write in ignorance of the extent to which the use of oil substitutes has gone in this branch of manufacture in the United States, but there are one or two brands of waterproof cuttings in England which it would be difficult to get much rubber from. Whatever the composition in these textures, they hardly seem to form a profitable material for the "recoverer" of rubber to purchase, though the large waterproof manufacturers who work them up by the acid process on the spot find the business worth their while.

RISE OF PRICE IN CHEMICALS.

APART from the compounds of lead and zinc, and leaving out of account caustic soda, there has not been any appreciable rise in the prices which rubber manufacturers have paid during the last year, and this notwithstanding the great rise in fuel. Quite recently, however, the substitute makers have advanced their prices, the well-known firm of Lufbery, whose works are near Rouen, having taken the lead in a circular to their numerous English customers. Another rise to be noted is that of Pratt's deodorized naphtha, a body which finds favor with some of our manufacturers who like a solvent of quick evaporating power.

A NOVELTY.

ON former occasions reference has been made in these notes to the increased business which the war has given rise to. This business, however, was due to legitimate needs, which can hardly be said to apply to the toys made of sheet rubber and which are now to be seen in the windows of the India-rubber shops in our towns. "The dying boar; creates roars of laughter" is to be seen placarded up in the windows, and closer inspection reveals an India rubber balloon in the form of a pig which, after being distended by air from the lungs, gradually becomes deflated and rolls over. As regards the good taste of the toy it is possible that two opinions exist, and one may also be inclined to envy, as did Mr. Pickwick in the case of Mr. Peter Magnus's friends, the facility with which many people can be amused, but perhaps one ought not to be too serious on such a matter.

SUBSTITUTES.

THE announcement of the failure of the "Firmus" rubber substitute company leads me to harp on an old string again. Firmus was described in glowing colors as the greatest invention of the age, and there was (on paper) no end to what it could do, according to a circular I have before me as I write. At the price of 1 shilling 6 pence per pound it would have been necessary, in order to do business, for the material to approximate much more closely to rubber than was really the case. Judging from reports I have received, the manufacturers who tried it were unfavorably impressed, and it is difficult to understand how those interested in it could have decided to go in for the manufacture on the large scale; if they acted on practical advice this must have proceeded from a very dubious source. At the present prices of the various oil substitutes it is a very risky undertaking to put money into a substitute of a new character until the time test, the only one which the rubber trade really pays any attention to, has proved it to possess some characteristics that put it on a higher plane than its old-established rivals.

TEXTILES.

THE high prices which waterproof manufacturers have had to pay during the last six months for their cloths are now on the decline, wool especially having come down. The waterproofing of silk goods, which became rather an important business about a decade back, has now almost died out. Difficulties arose about the grease in the silk, but the main reason of the decline can be put down to the high price of the goods.

PACIFIC CABLE QUESTION.

ON May 22 Sir Edward Sassoon, in the house of commons, urged the government to institute an inquiry into the whole question of the ownership of cables, expressing a decided opinion that the present rates charged to India and the East generally are excessive. On this occasion, as well as in a paper he read before the Society of Arts, on May 28, he expressed an earnest hope that the all-British Pacific cable to Australia would be proceeded with. The mouthpiece of the government, however, prevailed on him not to go to a division, as a public inquiry would be detrimental in giving information to the world as to the strategic importance of our cable system. In another paper, also read on May 28 at the Royal United Service Institution by Lieutenant C. W. Bellairs, the all-British cable was condemned, the author saying that Britain's guiding policy should be the benefit of commerce; cables should be laid so that repairs were easy, and friendly neutral territory should be touched as often as was likely to benefit commerce. Thus it will be seen that opinion is by no means unanimous on the Pacific cable question. Some of the newspapers, in commenting on the parliamentary proceedings, pointed out that a private departmental inquiry which was half promised by the government would be unsatisfactory, and the opinion was also expressed that the foreign governments already knew as much as they wanted about our cable system.

A COMMON MISTAKE.

I DO not know what is the case in America, but in England there is a general opinion among the public that India-rubber and Gutta-percha are one and the same body, or, at any rate, are very closely allied. What with cable enterprise and the interest that various countries are taking in the development of their colonies, the subject of India-rubber and Gutta-percha supplies is continually coming under the pen of the journalist, who is not an expert, and who often shows a lamentable ignorance of the fact that the substances are anything but identical. I have just read an account in one of the leading English papers of the projected German commission to the Malay archipelago, the object according to the scribe being the study of the India-rubber trees with a view to their acclimatization in the colonies. It is hardly necessary to say that Gutta-percha trees were what the paragraph had reference to.

[A FURTHER reference to this expedition will be found elsewhere in this paper.—THE EDITOR.]

CRUDE RUBBER AND PLANTING INTERESTS.

AN EXPERIMENT IN COSTA RICA.

THE Indiana Rubber Co. (Goshen, Ind.), mentioned in the last INDIA RUBBER WORLD as having been incorporated under Nevada laws, with $1,000,000 capital, were organized early in this year. They own 10,000 acres of land on the east coast of Costa Rica, purchased after four years' investigation in Central America by Lester C. Singer, of Goshen, Ind., who becomes the company's assistant manager. In a letter to THE INDIA RUBBER WORLD Mr. Singer writes:

"I was two years in Costa Rica, and decided that country to be the best for planting rubber, for the reason that there is no dry season on the Atlantic coast of Costa Rica as there is in Nicaragua and Honduras. I have planted over 300 acres of rubber in Costa Rica, and it is doing splendidly. My system of planting is to select rich, well drained soil where there is a heavy rainfall and no decided dry season. I plant the seed in a nursery and transplant in from six months to one year. I underbrush the land and thin out the timber enough to let in the light and air, and afterwards keep the plants clear of the undergrowth. I have associated myself with the Indiana Rubber Co., whose capital stock is $1,000,000. Three hundred thousand dollars of the stock of the company will be sold at par for working capital. We expect to commence active operations soon, for which I shall return to Central America." Mr. Singer's address for a time will be in care of the United States consul, San José, Costa Rica.

The company, in their prospectus, state that their estate has a water front of seven miles along a river, which affords means of ready communication with the different districts of the plantation and with the coast. "The land is as valuable as any in Costa Rica, where land similarly situated is easily sold for $100 per acre. . . Sufficient planting has been done to prove that the land is well adapted to the growth of rubber trees, chocolate, and other tropical plants. Some excellent specimens of rubber trees, which were planted by a former owner, are growing on the land." Mr. Singer is referred to as "a pioneer in the planting and an expert in the culture of rubber trees. He has received the commendation of officials and others who are interested in the development of the resources of Costa Rica. His plantations have gone through the experimental stage and have proven most excellent investments." The officers of the company are: Dr. Irvin J. Becknell, president; B. B. Brothers, vice president; L. M. Latta, secretary; Luther E. Bartholomew, treasurer; A. S. Zook, attorney; Clark Bruce, manager; L. C. Singer, assistant manager; and Eva Peck Bruce and Orville L. Simmons, trustees.

The secretary of the company, in sending a copy of their prospectus to THE INDIA RUBBER WORLD, writes:

"In view of your article on page 206 of your issue of May 1, we beg to call your attention to the statements we make, as we believe we have in every case been conservative. Should you find any statement that is at variance with your knowledge of the rubber industry we should be glad to have you call our attention to it." The prospectus embraces the following estimate of—

EXPENSE.

Planting and bringing to production and marketing 1 acre (100 trees) at the end of seven years	$40
10,000 acres will cost	$400,000
10,000 acres will produce at ½ pound per tree, in seventh year	500,000 pounds.
At New York price of $1 per pound, would be	$500,000
Less cost of planting, etc., as above	400,000
Profit at end of seventh year	$100,000
The production each year after the seventh year, being 100,000 pounds @ $1 per pound, will be	$500,000
Caring and marketing @ 25 cents per pound, each year	125,000
Annual profit	$375,000

THE INDIA RUBBER WORLD cannot undertake, in the present undeveloped state of the rubber planting industry, to pass upon the merits of the estimates of planting companies. It may be proper to suggest, however, that there nowhere exists, to our knowledge, data to justify any particular calculation of the cost of planting a given area in rubber and bringing the trees to the productive age. It might be more or less than $40 an acre, and accurate statements based upon experience would be welcomed by the editor. Another point is that 100 trees to the acre would seem an unnecessarily small number, as this would allow them to be planted 66 feet apart each way, and closer planting is advised by most authorities. Finally, the "New York price of $1 per pound" is misleading. This is the price of fine Pará rubber, but "Centrals," which grades are obtained from the *Castilloa elastica*, the rubber tree of Costa Rica, cannot be expected to bring nearly so much money. We are informed, however, that 65 cents has now been substituted for $1 in these estimates. The yield per tree is, indeed, estimated conservatively. We shall look for the results of this experiment with much interest.

RUBBER TREES IN SALVADOR.

WRITING from Santa Ana, Salvador—which is near the Pacific coast and also near the eastern boundary of Guatemala—Mr. J. Hill informs THE INDIA RUBBER WORLD: "I have *Castilloa elastica* growing on all my farms upon the Volcan here, so that I know it will grow, but it is in very small numbers, and up to now I cannot size up its age. But I know that a pound of rubber can be had from a tree, because the men get it out and use it. These trees have grown up here and there, unnoticed and uncared for, among the shade covering coffee plantations. I intend planting some 100,000 trees this year, in order to give rubber a trial. The rubber grows wild along the coast and up to our place."

RUBBER IN THE PHILIPPINES.

A CORRESPONDENT of THE INDIA RUBBER WORLD writes from San Francisco that a friend in Manila informs him that the plant known as the *Willoughbeia firma*—the kind of rubber plant native to the Malaysian peninsula and the Sunda islands, a creeper which grows to very large dimensions—is found growing wild in marshy sections of the island of Luzon, in the Philippines.

RUBBER PLANTING IN TRINIDAD.

IN the thirteenth annual report on the royal botanic gardens of Trinidad, for the year 1899, the superintendent, John H. Hart, F. L. S., gives some notes of interest on the progress under cultivation of *Castilloa elastica*, *Hevea Brasiliensis*, *Kickxia Africana*, and other rubber yielding species. One Pará rubber tree has a girth, 3 feet above ground, of 58 inches, and is 40 feet high. Experiments to date do not promise a large yield of *latex*. One fifth of an acre has been planted in *Kickxia* (Lagos

rubber), some of the specimens being now 8 feet high, and apparently thriving in the Trinidad climate. "*Castilloa* promises the best of any of the rubbers, so far, for local cultivation. A tree planted in 1888 is over 40 feet in height, and 51 inches in girth at 3 feet from the gronnd. It yields abundant *latex*."

THE RUBBER OUTLOOK IN EAST AFRICA.

MR. LOUIS SGAL, of Liverpool, who is interested in more than one company engaged in the exploitation of India-rubber in Africa, said recently to a representative of THE INDIA RUBBER WORLD:

"As regards the development of Africa as a rubber producing continent *par excellence*—I mean as a field for the investment of capital in handling rubber—a satisfactory settlement of the trouble in South Africa would no doubt beneficially affect the whole of the rubber districts in the east of Africa. If England should gain possession of the Transvaal and Orange Free State, an enormous impetus would no doubt be given to capital to Africa in railway enterprises, and it may be, in such a case, that very speedy progress would be made with the Cape to Cairo railway, which at present is not far from Portuguese East Africa. As it is, the country around the central African lakes is improving, and the native population is getting over the disastrous effects of the failure of last year's crops. It is a strange thing that in central Africa the rubber trade should be in so few hands, comparatively. Two or three of the trading companies have a few steamers plying on the rivers, and up to the lakes, and, although possessing only a very limited capital, they have trade over an area where there should be sufficient room for twenty more companies."

THE RUBBER BUSINESS IN BRITISH EAST AFRICA.
One of the "Factories," or Stations, of an English Trading Company, engaged in Bartering Goods with the Natives for Crude Rubber.
BY COURTESY OF MR. SGAL.

The English companies operating in Africa above referred to have no connection with the Belgian companies engaged in the Congo country, but are located further east. Good profits are reported to have been made in bartering goods of English manufacture with the natives for rubber collected by them. Mr. Sgal is of the opinion that American capital might be invested profitably in a similar way.

THE MANGABEIRA AND MANICOBA RUBBERS.

IN the Brazilian state of São Paulo in 1899 a law was passed to encourage the cultivation of mangabeira rubber (*Hancornia speciosa*), and premiums offered for the acclimatization of other good rubber species, and for better processes of extracting the *latex*. The mangabeira tree grows native in the states of Pernambuco, Bahia, Goyaz, Espirito Santo, São Paulo, Minaes Geraes, and Rio de Janeiro. There are many of the trees in the last three states. A recent report from the Belgian legation at Rio de Janeiro states that attempts to grow mangabeira trees from seeds have thus far failed, the planting having been done in lands exposed to the sun. Many native trees growing on plantations in São Paulo have failed to yield a profit to the owners, because of having been tapped surreptitiously by the natives. The government is now distributing seeds of the maniçoba or Ceará rubber tree (*Manihot Glaziovii*), and large quantities have been planted, the quality of this rubber being superior to the mangabeira. Many maniçoba trees have been planted on coffee estates, but one planter reports scarcely one of a thousand young trees surviving the attacks of ants and other insects. The government of the state of Bahia is also encouraging the growth of maniçoba, distributing a pamphlet of instructions. A discouraging report is to the effect that "lately the entire cargo of Ceará [maniçoba] rubber shipped in an English steamer was refused in London, under pretext that this gum was of too inferior a quality."

RUBBER EXPEDITION TO THE SOUTH SEAS.

IN pursuit of its object—the greatest possible independence of Germany in regard to the importation of tropical products from foreign countries—the colonial industrial committee, at Berlin, have decided to send a "Gutta-percha and Caoutchouc Expedition" to the South-sea colonies, for the purpose of—

1. The study of the Gutta-percha and Caoutchouc culture and exploitation, in Dutch and British Indies (Sumatra, Borneo, Java, and Straits Settlements);

2. Planting and increasing the Gutta-percha yielding *Sapotaccees*, and the caoutchouc yielding *Ficus* trees and *Apocynacee* vines of New Guinea and the South-sea isles;

3. The sending of large quantities of seeds and plant material to New Guinea, the South-sea colonies and Kamerun, to introduce a regular culture of Gutta-percha and Caoutchouc on a large scale;

4. Transporting larger quantities of Gutta-percha leaves and bark to Germany for experimentation, to produce Gutta-percha suited for manufacture.

Rudolf Schlechter, the botanist, has signified his willingness to carry out the expedition. Herr Schlechter should be especially qualified for this important undertaking, in consequence of his rich experience gained as leader of the Caoutchouc expedition to Inhambane and West Africa; he also carried out, successfully, the expedition to West Africa in behalf of the colonial industrial committee, introducing the culture of Caoutchouc plantations in Kamerun.

The cost has been estimated at 60,000 marks, 30,000 of which have been placed at the disposition of the committee, with the proviso that it obtain the remainder from interested parties.

The Caoutchouc and cable industries have every reason to willingly and materially assist the committee to carry out its plan of sending a "Gutta-percha and Caoutchouc expedition" to the South-sea islands. An authority in our industry once said: "The Caoutchouc goods manufacturers must manifest the same interest in the agricultural side of their industry as the sugar manufacturers accord the beet culture!" The truth contained in these words stands to-day without a doubt, and the sharper the condition of the Caoutchouc market becomes, the nearer a possible Caoutchouc famine approaches, and the more we notice on the other side how the industries of other countries are actively employed in the cultivation of Gutta-percha and Caoutchouc plantations, the more energetic should we be to transform this object to a fact indeed. It is sowing seed into the future, but some day it is bound to bear abundant fruit, and repay generously the sacrifices made.—*Die Gummi-Zeitung* (*Dresden*).

SATISFACTORY CONDITION OF THE RUBBER SHOE TRADE.

THE rubber shoe trade generally will not fail to be interested in reading the copy which follows of a circular issued by Mr. O. C. Smith, of Chicago, in his capacity as president of The Western Association of Shoe Jobbers, to the members of that association. On March 20 President Smith addressed to the members a circular letter asking several questions bearing upon features of the trade of importance, and in this later circular letter he has summarized the answers. It is pleasant to note that, on the whole, a satisfactory state of affairs exists in the rubber shoe trade, in spite of the fact that last winter's total snowfall was so far below the average. The circular reads:

TO THE MEMBERS:

Gentlemen: About 75 per cent. of those our circular letter of March 20 was sent to have answered the questions contained therein, and it is a pleasure to us to give you the results of the combined views and opinions you have so clearly expressed in your answers.

First—"Have the conditions surrounding the trade in rubber footwear during the season about to close been of material benefit to you?" We regret that to some extent this question is ambiguous. The "conditions" referred to are those produced by the work of the Association, and we are glad to state that with one single exception the answers express in the strongest terms the "material benefit" derived and a strong desire that these "conditions" be continued. We cannot refrain from giving you a few extracts from the many answers received. Here they are: "We find a great number of disagreeable features that existed heretofore have been largely done away with, and feel that this is due to the efforts of the Association." "It is the first season for some time that we have not heard of cutting prices. It has been no trouble to obtain regular prices." "We hope the Association will be as closely united for the coming season as it was in 1899, and even more so if such a thing be possible." "Competition on rubbers last year was the most legitimate it has been for many years." "First of all we are more than pleased with the arrangement. It is easier to get our orders and easier to satisfy our customers." "We have had the most satisfactory rubber trade this last season in the history of our business." "It was easier to sell rubbers this last season at the full price than before at cut figures, and a greater degree of satisfaction existed from the fact that the trade realized that all were being treated alike." "We find that retailers as a rule do not try to get any extra discounts." "Do not believe that prices have been maintained so well for many years." "We consider it the best thing jobbers ever did." "We have heard few complaints. They were mainly from chronic salesmen who are always finding fault with the other fellow. Jobbers should instruct their salesmen not to be rainbow chasers." "There is no expense money paid out more cheerfully than this $75." "Under no consideration should we like to see a departure from this method."

Second—"What per cent. of your purchases of rubber since May 1, 1899, are now in your hands?" The answers to this question were all the way from 10 to 50 per cent. The average is 26 per cent.

Third—"What per cent. of the purchases of rubbers by your customers since May 1, 1899, do you estimate are now in their hands?" Many do not attempt to answer this question with any degree of certainty. The answers received run from 15 to 50 per cent. The average is 30 per cent., consisting almost entirely of heavy goods.

Fourth—"Have their sizing-up orders, in your judgment, been equal to what they were in former seasons?" With very few exceptions the answers are that they have been much less, some saying they had had practically none.

We have a great many hearty responses to the last paragraph of our circular letter containing the above questions, wherein we urge full consideration of the benefits derived from the conditions that have controlled the rubber trade during the past season, some of which we will quote from. All are worthy of a place here, but to give all of them might make this communication too long. "No matter what prices are, we shall be more interested in knowing that the members of the Association stand shoulder to shoulder to the end that the prices, whatever they may be, shall be quoted by each and all of us alike, with positively no deviation therefrom." "Impress upon the members 'not to weary in well doing,' but to see that the rules are carried out to the letter. By so doing we shall have permanent success." "If the members of the Association will live up to

Berlin. British. London. Venice.

STYLES OF TOES IN MEN'S SHOES.

Berlin. British. Venice. Opera.

STYLES OF TOES IN WOMEN'S SHOES.

FROM THE "WALES-GOODYEAR" CATALOGUE, SEASON 1900-01.

its rules as well and honestly during the coming years as they have in the past, we will have occasion to feel grateful for its organization and proud to be numbered among its members." "We believe that the conditions of the past year will be of greater benefit in the future if strictly adhered to, and we certainly shall advocate a continuance of the policy already established."

Weather "conditions" have undoubtedly been against a satisfactory rubber trade during the past season. We cannot control them, although one of our members writes: "We think our Association should try and extend its influence in *that direction* also." We have great faith in the ability of our Association to control conditions, but do not believe we will undertake to "harness the clouds" this year. Other "conditions," however, we have by combined efforts satisfactorily controlled, and with a continuation of the hearty support of our members will continue to control them. Very respectfully,

O. C. SMITH,
President.

CHANGES IN SHAPES OF SHOES.

THE shapes of rubber shoes have given manufacturers, jobbers, and retailers far less trouble in laying out their plans for each season during the last two years than was experienced a little farther back, while styles were fluctuating so widely. A comparison of the cuts shown on this and the opposite pages, selected from catalogues of important concerns in the rubber shoe manufacturing trade, will show that, while shapes have not been altogether without change, the net result of three years' modification of styles has not been great,

Commenting on the absence of novelties in the catalogues of the rubber shoe manufacturers this season, a salesman said: "It is a good thing for the manufacturers. It is not to their interest to try to bring out new styles in rubbers. In the first place, from the nature of their business, they are obliged to follow the lead of the leather shoe manufacturers in the matter of styles, since the rubber is only an auxiliary shoe. If there are marked changes in leather shoe shapes, the rubber manufacturers must go to a great expense in obtaining new lasts, in order to be able to fit them. Should there be a great variety of shapes, or styles should be fluctuating, much uncertainty may exist in the minds of the rubber shoe trade as to what styles are likely to be most in demand, or to become most permanent. The ideal situation for the rubber manufacturer is an entire lack of novelty in the leather shoe market. He can then plan a year's production on old lines, and the same condition is favorable to the jobber as well, and likewise to the retailer."

NEW SHOE PRICES IN CANADA NO HIGHER.

THE Canadian rubber shoe manufacturers have issued uniform price lists for the new season, and likewise uniform discounts. A trade discount of 25 per cent. is allowed with a further discount on the net amount of 1 per cent. for all orders placed by July 1 and filled by November 1. The cash discounts are 5 per cent. 10 days and 4 per cent. 30 days. Goods shipped in July, August, and September are called fall shipments and are payable November 10 at 5 per cent. discount or November 30 with 4 per cent. discount; all other shipments shall be dated from the first of the month following shipment. In the agreement 8 per cent. per annum is allowed for prepayment and the same rate chargeable on past due accounts. It may be said that the above discounts, with the new list, leave prices on rubber footwear practically as they were last year. There are now six Canadian firms manufacturing rubber footwear: The Canadian Rubber Co. of Montreal; the Gutta Percha and Rubber Manufacturing Co. of Toronto, Limited; the Granby Rubber Co., Limited, (Montreal); the Maple Leaf Rubber Co., Limited (Toronto); the Boston Rubber Co., Limited (Montreal); and the Berlin Rubber Manufacturing Co. (Berlin.)

RUBBER SHOE TRADE NOTES.

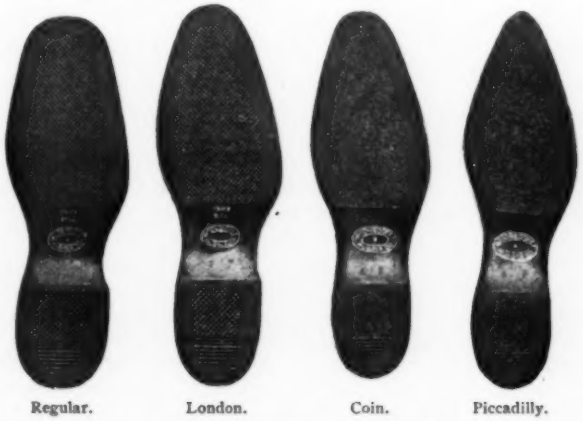
THE first pair of rubber shoes made at the new factory of the Apsley Rubber Co. (Hudson, Mass.) was sent to President Apsley's father, Mr. George Apsley, of New Haven, Conn.

=William B. Laighton, selling agent for the Apsley Rubber Co. (Hudson, Mass,), has established a Boston office in Room 504, Essex building, where he will be pleased to see old friends and make new acquaintances.

=The orders received by the Linthicum Rubber Co. (Baltimore)—now selling agents for the Banigan goods—to June 1 are reported 95 per cent. larger than to the same date in any previous year.

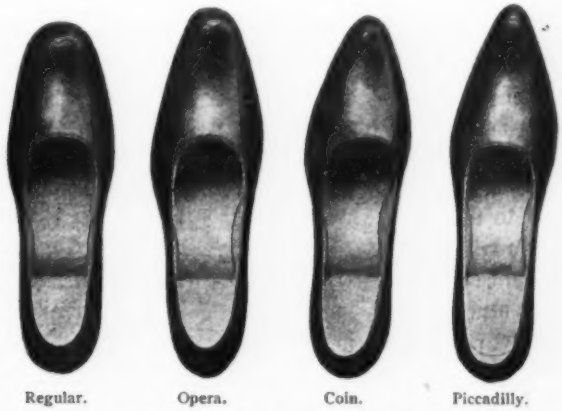
=One of the oldest and best retail shoe stores in New York is Alexander's, in Sixth avenue, which dates from 1858. A recent report from this store is that the sale of tennis shoes of heavy canvas and extra heavy rubber sole has been unprecedentedly large this season, especially in boys' sizes.

=An item from Boston is that a Russia calf rubber sole tennis at $3 is a good seller.



Regular. London. Coin. Piccadilly.

STYLES OF TOES IN MEN'S RUBBERS.



Regular. Opera. Coin. Piccadilly.

THE "CLIFTON," FOR WOMEN—FOUR STYLES.

FROM THE WOONSOCKET RUBBER CO.'S CATALOGUE, SEASON 1897-98.

LITERATURE OF INDIA-RUBBER.

DE L'EXPLOITATION DU CAOUTCHOUC AU BRESIL (SERINGUeira-Maniçoba-Mangabeira). Par L. Furguim d'Almeida, docteur en droit. Bruxelles: Oscar Schepens & Cie. 1900. [Paper. 8vo. 24 pp. Price, 75 centimes.]

THE growing interest in Belgium in investments in the rubber business in South America has prompted the preparation of this concise but comprehensive summary of the more salient facts regarding the principal rubber species of Brazil—location of the trees, means of transportation, labor supply, processes of collection, statistics of production, suggestions on planting, details of climate, etc. Special attention is paid to the "maniçoba" or Ceará rubber, about which less information of a trustworthy character is in print than in regard to the *Hevea* species, which yield the Pará rubber.

INDIA-RUBBER, GUTTA-PERCHA, AND BALATA. BY WILLIAM T. Brannt, Editor of "The Techno Chemical Receipt Book." Illustrated by 24 Engravings. Philadelphia: Henry Carey Baird & Co. 1900. [Cloth. 12 mo. 328 pp. Price, $3.]

DEVOTED to the occurrence of rubber species, geographical distribution, and cultivation of rubber plants; manner of obtaining and preparing the raw materials, mode of working and utilizing them, including washing, loss in washing, maceration, mixing, vulcanizing, rubber and Gutta-percha compounds, utilization, Balata, and statistics of commerce.

THE paper by Walter F. Reid, F.I.C., F.C.S., on "Velvril Material: A New Substitute for India-rubber and Gutta-percha," read before the Society of Chemical Industry last fall, has been reprinted from the *Journal* of the Society, in a 16mo. pamphlet of 12 pages.

THE state government of São Paulo, Brazil, has published a report by A. Achoa Cavalcanti, professor of chemistry and agriculture at the Polytechnic School of São Paulo, who was commissioned to visit the regions in the state where the mangabeira rubber grows native. It includes an appendix on the maniçoba (Ceará) rubber, by Pereira d'Utra, director of the Agronomical Institute of Campinas.

IN CURRENT PERIODICALS.

LA Fabrication des Pneus. By Gaston Sencier. [First of a series of illustrated articles, beginning with an account of the nature of Caoutchouc, the methods of obtaining it, and its treatment preparatory to the manufacture of tires.]=*La Locomotion Automobile*, Paris. VII-14 (April 5, 1900.) pp. 212-216.

Note on the Variation, with Tension, of the Elastic Properties of Vulcanized India rubber. By Prof. J. C. Macgregor and W. A. Macdonald, Dalhousie College, Halifax, N. S. [Reprint from *Proceedings* of the Nova Scotian Institute of Science, Vol. X (session 1898-99.]= *The Electrical Review*, London. XLVI-1169 (April 20, 1900.) pp. 673-674.

The Protection of Insulated Wires for Electric Light and Power Inside Buildings. By Sidney F. Walker.=*The Electrical Review*, London. XLVI-1171, 1172 (May 4, 11, 1900.) pp. 765-767; 808-809.

Millions for Golf Balls. By G. F. Spalding. [Description of their manufacture from Gutta percha, and estimates of the extent of consumption.]=*The Daily Transcript*, Boston. (May 23, 1900.) p. 16.

Culture du Caoutchouc au Costa Rica. [Addressed by Emile Jore, French consul at San José, to the minister of foreign affairs.]=*Revue des Cultures Coloniales*, Paris. VI-50 (April 5, 1900). pp. 216-218.

Sur une Espèce Nouvelle de *Castilloa* de Costa Rica. By J. Poisson. [Extract from the *Bulletin du Muséum d'Histoire Naturelle*. This species is known locally as "hulé machado." It is proposed to designate it as the *Castilloa tunu*. The product is known commercially in the United States as "Tuno" or "Tunu" gum.]=*Revue des Cultures Coloniales*, Paris. VI-53 (May 20, 1900.) pp. 302-303.

New Process for Extracting Rubber. [Translated and condensed from the *Revue des Cultures Coloniales*; results from French experiments in coagulating rubber.]=*The Indian Forester*, Mussoorie. XXVI-4 (April, 1900.) pp. 129-134.

La Maniçoba (*Manihot Glaziovii*). [Translated and condensed from a report on the cultivation, extraction of *latex*, and preparation of Ceará rubber, by the secretary of agriculture, industry, and public works of the state of Bahia, Brazil.]=*La Gazette Coloniale*, Brussels. II-18 (May 6, 1900.) pp. 4-6.

Blätterkautschuk. By Dr. Axel Preyer. [Small results from extracting rubber from leaves.]=*Der Tropenpflanzer*, Berlin. IV-5 (May, 1900.) pp. 230-231.

Sur un Nouveau Procédé d'Extraction du Caoutchouc contenu dans les écorces de diverses plantes, et Notament du *Landolphia*. By A. Arnaud and A. Verneuil. [Extract from the *Bulletin du Muséum d'Histoire Naturelle*. Relates to drying the bark of *Landolphia* and other species and extracting rubber by mechanical and chemical means.] =*Revue des Cultures Coloniales*, Paris. VI-53 (May 20, 1900.) pp. 304-305.

Le *Marsdenia verrucosa*, ou "Bokalahy" de Madagascar et son Caoutchouc. By Henri Jumelle. [A rubber producing vine in northwest Madagascar, resembling somewhat the *Cryptostegia Madagascariensis*]=*Revue des Cultures Coloniales*, Paris. VI 53 (May 20, 1900). pp. 293-295.

The Rubber Yielding *Ficuses* in North Africa. [Translated from the *Revue des Cultures Coloniales*, November 5, 1899.]=*The Tropical Agriculturist*, Colombo. XIX-11 (May, 1900.) p. 758.

Kautschuk-Expedition nach Westafrika. By R [udolph] Schlechter. [Deals chiefly with the planting of *Kickxia* in Kamerun and elsewhere.] =*Der Tropenpflanzer* Berlin. IV-5, 6 (May, June, 1900.) pp. 213-219; 277-280.

Vortrag im Verein Kameruner Pflanzer. [Suggestions toward the cultivation of the different Caoutchouc species in German West Africa.] =*Der Tropenpflanzer*, Berlin. IV-6 (June, 1900.) pp. 280-285.

Caoutchouc Calédonien. By E. Derouen. [Report reprinted from the *Bulletin de l'Union Agricole Calédonienne* on the occurrence in New Caledonia of a rubber producing tree of the banyan type, to which belongs also the *Ficus elastica*, of Assam.]=*Revue des Cultures Coloniales*, Paris. VI-53 (May 20, 1900). pp. 310-311.

Pará Rubber in the Straits; a Promising Outlook. By E. V. Carey. [Reprinted from the Singapore *Free Press*, March 17, 1900.]=*The Tropical Agriculturist*, Colombo. XIX-11 (May, 1900.) p. 748.

Royal Botanic Gardens [of Ceylon]. Extracts of the Report of the Director for 1899. [With references to India-rubber cultivation.]= Bound with *The Tropical Agriculturist*, Colombo. XIX-11 (May, 1900.) 8 pages.

OTHER PUBLICATIONS RECEIVED.

FIFTY YEARS' RECORD OF FACTORY MUTUAL INSURANCE, BASED on Thirty-five Years Personal Experience, with Suggestions for the Protection of Cities from Conflagrations. By Edward Atkinson, LL.D., PH.D., President Boston Manufacturers Mutual Fire Insurance Co., Boston: Damrell & Upham, 1900. [Cloth. 8vo. 95 pages.]

AN interesting and valuable record of the development of fire protection through mutual insurance—a plan in which the rubber trade are interested to no small extent, the Rubber Manufacturers Mutual Insurance Co. having been in successful operation since 1886.

THE "Industrial Chronology" forming a part of the annual report on the Statistics of Manufactures of Massachusetts, for 1899, and which has been printed in pamphlet form in advance of the complete report, is fuller than for any former year and gives promise of becoming in time an invaluable work of reference in regard to changes in industrial concerns in Massachusetts.

THE proceedings at the sixty-fifth annual dinner of the St. David's Society of the State of New York, given on March 1, 1900, printed in a handsome pamphlet, include an address by Charles R. Flint on "The Open Door, from an Industrial Point of View." He was introduced as a gentleman whose name had been "considerably associated with what are usually called 'trusts' or 'combines,'" and he was asked "to explain the difference between the way they do things now in these matters from the way they did them in former times."

RUBBER MANUFACTURING IN JAPAN.

THE principal rubber goods factory in Japan is that of the Toyo Gomu Seyzo Kaisha, or, literally, Oriental Rubber Manufacturing Co., at Tokio. This important company has resulted from a small beginning, made twenty years ago by Mr. Ogiwara, after spending several years in England, during which time he paid special attention to the rubber industry. The company referred to have recently increased their capital stock to 500,000 yen, or about $250,000, gold. They have now employed some 225 hands. At the beginning the company devoted its attention chiefly to mold work, since which time it has added successively, valves, gaskets, sheet and other packing, rollers for paper mills, printers' blankets, and hose. The latter, by the way, is still made up by means of rolling by hand. Little belting has been made by the company for the reason that rope transmission is in most common use in Japan. By the way, it is mentioned that the greatest width of machinery belting used in Japan is 12 or 14 inches. Power is supplied in this factory by a 200 horse power engine. The Pará rubber used is imported from New York, on account of the more favorable freight rates than can be obtained from Europe. The company have paid recently, as high as 3 yen 20 sen for Up-river Pará rubber. They import lower grades of rubber direct from Java, Sumatra, Borneo, and Saigon. There is an import duty of 5 per cent. on crude rubber. The duty on imported mechanical goods is 10 per cent., and on other classes 20 per cent., which rates, by the way, are not regarded as affording sufficient protection against foreign goods. The officers of the Oriental company are A. Tanaka, president; S. Nomoto, vice president and treasurer; and H. Okawa and S. Fujikura, directors. Mr. Okawa is the superintendent of the factory. Mr. Fujikura is interested, in addition, in a factory for insulating wire, which gives employment to 60 or 70 hands. The Oriental works, at the beginning, were equipped wholly with machinery of European manufacture, but their observation of the results obtainable from American made rubber machinery have led them recently to send a representative to the United States to place some important orders for new equipment.

RUBBER SHOE SOLES FOR CHINA.

MR. C. K. OGIWARA, of the above company, and a son of its founder, while in New York, made a suggestion of interest with regard to a possible new opening for rubber goods in the Orient. In despite of all the attempts which have been made to introduce rubber shoes into China and Japan, even where efforts have been made to adapt the shapes to the native ideas of footwear, little success has been attained. A certain trade is done in this line, but it shows no increase from year to year. Mr. Ogiwara's idea is that ordinary Chinese shoes made with rubber soles might meet a large demand, and that a good business could be developed in supplying the native shoemakers with such soles, the remaining parts of the shoes to be made up as has been the custom for thousands of years. There are no good roads in China, nor are the streets in the cities well paved, and there are many rainy days in a year. But either in wet or dry weather, the rubber sole might prove attractive. Everybody in China wears shoes, and the Tokio company mean to introduce rubber soles to the trade there. Mr. Ogiwara thinks the field large enough to prove attractive to American rubber manufacturers as well.

ANOTHER record was made lately on "Continental" tires, manufactured by the Continental company, at Hanover, Germany. Josef Fischer, on these tires, covered 60.2 miles in 2 hours and 12 seconds.

AMERICAN RUBBER GOODS EXPORTS.

RETURNS have now come to hand of exports of rubber goods from the United States for ten months of the current fiscal year, the values being as follows:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
July, 1899....	$51,535	$22,580	$ 99,918	$174,033
August	59,069	43,378	102,264	204,711
September....	42,858	34,233	122,959	200,050
October.....	52,643	34,894	106,223	193,760
November....	33,913	47,898	120,221	202,032
December ..	39,051	40,426	101,771	181,248
January, 1900.	40,137	30,452	94,886	165,475
February. ...	38,724	27,246	128,017	193,987
March	39,749	30,866	140,353	210,968
April	41,541	18,398	115,797	175,736
Total.	$439,220	$330,371	$1,132,409	$1,902,000

The exports of rubber goods of all kinds for the corresponding ten months of 1898–99 reached a total value of only $1,408,727. The rate of increase is 35 per cent. The exports of rubber shoes during the ten months amounted to 597,614 pairs, against 393,830 pairs in the first ten months of the preceding fiscal year—an increase of 51 per cent.

Exports of reclaimed rubber have amounted in value as follows, for periods of ten months ending April 30:

1898.	1899.	1900.
$212,900.	$278,438.	$387,397.

Exports of American rubber goods to the new insular dependencies of the United States for the same ten months have been as follows:

ISLANDS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
Cuba	$34,731	$2,382	$23,791	$60,904
Porto Rico....	2,423	170	3,596	6,189
Hawaiian Is..	15,624	3,741	37,414	56,779
Philippines ...	377	30	1,651	2,058
Total	$53,155	$6,323	$56,452	$125,930

Colonel Samuel P. Colt, of the United States Rubber Co., is reported in a newspaper interview as saying: "Our export business is steadily growing. We have established additional facilities for doing this kind of business and, while it has been small in the past, we estimate that this coming year it will be 50 per cent. greater than during the year just completed."

GOLF BALLS.—In the Boston *Transcript* G. F. Spalding says that more money is spent for golf balls than for any other plaything ever known. The average player's outlay for balls is much greater than for clubs. Mr. Spalding makes an estimate of the number of golfers in the United States and of their requirements in balls which would call for an annual demand for 21,600,000, at an expense, at 25 cents each on an average, of $5,400,000. He thinks that in the end the trade will be supplied mainly by American makers. The profit cannot be great, however, considering that the crude Gutta-percha in a dozen balls, retailing at $3.50 to $4.50 per dozen, costs the manufacturer about $2, and the material must be kept in stock a year or more to insure the balls being suitably seasoned before put in use. It is plain, however, that Mr. Spalding's estimate of the sale of golf balls is excessive, for the reason that the total value of imports into the United States of Gutta-percha and of Gutta-percha goods falls far short of the amount above stated.

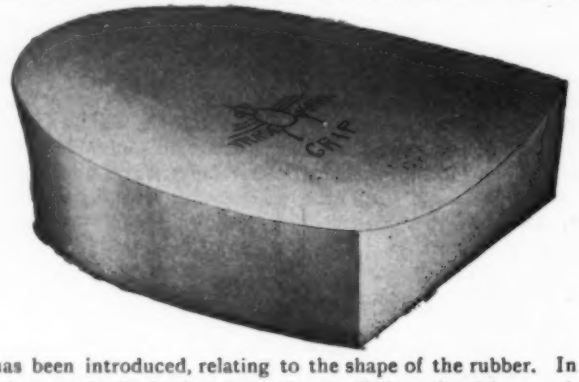
NEW GOODS AND SPECIALTIES IN RUBBER.

THE MIDDLETON TOUGH TIRE.

THIS tire, which is designed for automobiles and vehicles rather than for cycles, was patented on January 13, 1900, by H. A. Middleton, a well known expert in this line. The thought that led up to the production of this tire was the weakness shown in inner tubes made up of one thickness. Mr. Middleton's first step then was to strengthen the inner tube on the sides, to double the thickness, leaving the inside a perfect circle, and the outside elliptical in shape—in other words, putting strength where it is most needed. A second improvement is in the puncture proof strip made of rubber, fiber, and sulphur, which is in itself an exceedingly tough material. One ply of this, encircling the inner tube and stopping just below the periphery, acts as a support to the inner tube, and also holds the rubber right in place during vulcanization, the result being that the proper thickness of the side walls is retained. This puncture proof compound is spread on very close fabric, and the tire is built up by alternate plies of regular fabrics and puncture proof fabrics, and, as the latter is made of rubber, it takes nothing from the resiliency of the tire. The inventor does not claim that the tire, by the way, is absolutely puncture proof, but he does claim that the tire is the toughest and hardest to puncture that has yet been made. While it can be made for a racing tire, it has been brought out specifically for automobile work, and it is stated that some of the largest automobile companies in this country are negotiating to-day for the tire. In addition to the United States patents, the tire is protected in Canada, England, France, and Belgium. In this connection it may be well to mention that Mr. Middleton, the inventor of the tire, was formerly the general superintendent, as well as one of the stockholders, of the Pennsylvania Rubber Co. (Erie, Pa.) He has, however, resigned from that company, to become the practical head of the Middleton Tough Tire and Rubber Co. In making this change, Mr. Middleton has placed himself where, with his own well appointed factory, he will be able to devote his entire time to the manufacture of tires built in accordance with his inventions, and, in addition, will manufacture a high grade of mechanical rubber goods.

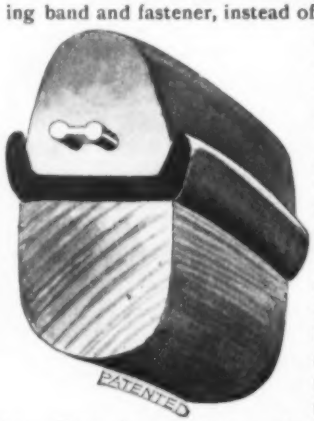
"SPIDER GRIP" HEELS MADE WITH RAND.

IN the issue of this journal for February 1 last was described and illustrated the "Spider Grip" rubber heel, manufactured by The Grieb Rubber Co. (Philadelphia). A distinctive feature of these heels is the method of inserting the nails for attaching the heels to the leather shoes. More recently a new feature has been introduced, relating to the shape of the rubber. In other words, the heels can now be supplied, made with a rand, so that they can be attached directly to the heel seat by the heeling machine. These goods are supplied by Farnsworth, Hoyt & Co., Boston, Chicago, and Brockton, Mass.



THE CALUMET TIRE.

THIS is a solid rubber vehicle tire, held in place by a retaining band and fastener, instead of welded or brazed bands. The old Calumet Rubber Tire Co., of Chicago, was the second oldest concern in the solid rubber tire business in the United States. A year ago they were reorganized as the Calumet Tire Rubber Co., and became a manufacturing instead of a jobbing concern, as was originally the case. They now have a complete and well equipped tire factory, built for the purpose in view, and in which every detail of their work is done, including the manufacture of the rubber. They also manufacture the machines and tools for applying the tire, which are included under the general name of "the Calumet apparatus," an illustrated catalogue of which may be obtained gratis. Arrangements may be made by carriage manufacturers and others to purchase this apparatus. [Calumet Tire Rubber Co., Nos. 116–128 North Lincoln street, Chicago.]

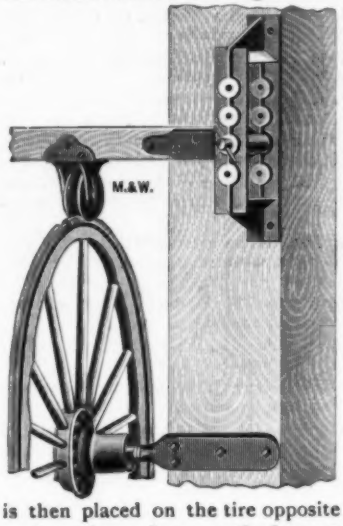


MOLDERS' RUBBER HEAD DRAW HOOKS.

THE little article illustrated herewith has met, in a short time, a very active demand. Particular attention is called by the manufacturers to the fact that the use of this rubber head in rapping will obviate the cracking or marring of patterns. It is stated that at first but a few hundred of these were made up, but they have moved off so rapidly that the makers have already a good many back orders awaiting the completion of a second lot, which is now about ready for shipment. [The Osborn Manufacturing Co., No. 40 High street, Cleveland, Ohio.]

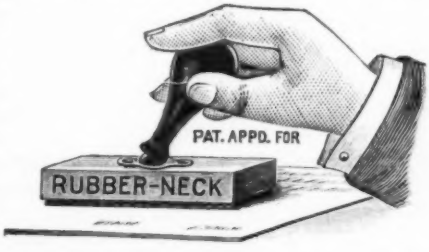
RUBBER END TIRE ADJUSTER.

THIS little tool has been devised to facilitate the bringing of the ends of vehicle tires together after they have been fastened in the channel and riveted. As shown in the cut, this tool consists of a small grooved wheel attached to a lever, this lever being four feet in length, thus giving plenty of leverage. (Only part of lever is shown in cut.) This lever is fastened to an iron frame with four sets of holes to make it adjustable to any size wheel. The method of bringing tire ends together is very simple. Place the wheel on the axle fastened to a beam, as shown in cut. Adjust the lever to the diameter of wheel. The grooved wheel is then placed on the tire opposite the opening, and while an assistant bears down on the lever, turn the wheel half a turn each way, which will bring the ends of the tire together, when the rubber solution will soon form a perfect union and a continuous tire. The ends of a tire can thus be brought together in thirty seconds. [Morgan & Wright, Chicago, Ill.]



A FLEXIBLE RUBBER STAMP HANDLE.

IT is claimed for this handle that, by reason of the flexibility gained by the peculiar method of its construction, it enables the stamp always to adjust itself properly to the surface to be printed on, thus insuring even contact with the paper. The result is that the reading matter will always be printed legibly, regardless of the manner in which the stamp may happen to be set down. Such a result is not certain in the use of rigid stamp handles. The price of this handle is very low—$15 per thousand—thus enabling stamp dealers to supply it to their customers without materially increasing their charges. [Flexible Handle Co., Nos. 63-67 Chandler street, Buffalo, N. Y.]



THE REVERSIBLE RUBBER HEEL.

MANY devices in the shape of rubber heels have been placed upon the market, one of the latest being "The Reversible Rubber Heel," manufactured by A. W. Rice (Lynn, Mass.). The rubber is held in position by a suction and concave-convex process which is very effective, and the fastening calls for no holes and no nails. The heel may be reversed so as to be worn upon either side, at the option of the wearer. The outer portion of the heel or case which holds the rubber section is made of linen fiber and aluminum, the whole weighing but one ounce a pair. It is flexible because the weight comes wholly upon the rubber, and not upon screw or nail heads. If the rubber wears off on one side, a slight change brings the higher side to that point, and thus gives opportunity for even wearing that will be appreciated.

THE DUCK LUMBER KING.

A NEW duck shoe, which has been added this year to the Wales-Goodyear's lumbermen's line, bears the above title. It is a high cut shoe with fleece lining, giving it the warmth of an extra pair of socks. The shoe is built on the best possible lines, and made of high grade material, both in duck and rubber, has in it a great amount of wear. It is furnished with raw hide laces, which make it possible to fit the shoe closely around the ankle. [The Wales-Goodyear Rubber Shoe Co., Naugatuck, Conn.]

RECENT RUBBER PATENTS.

UNITED STATES PATENT RECORD.

ISSUED MAY 1, 1900.

NO. 648,464. Means for inflating pneumatic tires. George W. Mowry, Rochester, N. Y.

648,524. Rubber tire. Ira Poffenberger, Urbana, Ohio, assignor of two-thirds to Stephen B. Payne and Thomas J. Frank, same place.

648,537. Vehicle tire. John G. Sorup, Tiffin, Ohio.

648,635. Vehicle tire. Frank A. Seiberling, Akron, Ohio.

ISSUED MAY 8, 1900.

648,930. Manufacture of continuous tubings or coverings of rubber. Henry J. Doughty, Providence, R. I.

648,991. Buttonhole sewing machine. William N. Parkes, New York.

649,016. Elastic tire for cycles. Luise Thurns, Altona, Germany.

649,053. Pneumatic tire for bicycles. William F. Henderson, Chicago, assignor to William D. Cooper and Willis J. Grow, same place.

649,080. Process of making varnish. John V. Sherrin, London, England.

649,098. Means for securing tires to wheels. Richard A. Brins, Revere, Mass.

649,117. Vehicle wheel. William H. Strutt, New York city, assignor of one-half to Alfred Reeves, same place.

649,231. Horseshoe. Victor Winquist, Rockford, Ill.

646,317. Grinding machine. Abraham B. Landis, Waynesborough, Pa.

ISSUED MAY 15, 1900.

649,434. Rubber soled boot or shoe. George F. Butterfield, Stoneham, Mass.

649,585. Hand stamp. Louis K. Scotford, Chicago, Ill., assignor to the Independent Manufacturing Co., same place.

649,593. Nursing nipple. Charles E. Black, Providence, R. I.

649,688. Elastic wheel. Martin T. Minogue, Springfield, Ohio, assignor of one-half to Thomas C. Reynolds, Cincinnati.

649,719. Tire for vehicles. Charles E. Duryea, Peoria, Ill., assignor to the Indiana Rubber and Insulated Wire Co., Marion, Ind.

649,720. Vehicle tire. *Same.*

649,721. Tire. Frank F. Fairchild, Cleveland, Ohio.

649,775. Tire for vehicle wheels. John M. Sweet, Batavia, N. Y., assignor to Frank Richardson, trustee, same place.

649,796. Amalgamator. Alfonso Z. Baldenebro, Mexico, Mexico.

ISSUED MAY 22, 1900.

650,142. Tire tightener. Isaac Allaman, Hummelstown, Pa., assignor of three-fourths to S. F. Allaman, J. H. Allaman, and A. Allaman, same place.

650,334. Horseshoe pad. Peter J. Mead, Milwaukee, Wisconsin.

ISSUED MAY 29, 1900.

650,424. Tire valve attacher. George H. F. Schrader, New York city.

650,581. Amalgamator. Andrew M. Ernsberger, New York city, assignor of one-half to Artemas Ward, same place.

650,621. Vehicle wheel tire. Arthur L. Stevens, New York city.

650,638. Elastic wheel hub for vehicles. George M. Dixon, Sacramento, Cal.

650,656. Exercising apparatus. Julius A. Raabe, St. Louis.

650,782. Grinding mill. Robert Ellin, Yonkers, N. Y.

TRADE MARKS.

34,601. Varnish. "Glossoline" Imperial Stain, Paint, and Filler Co., Scranton, Pa. May 1, 1900.

34,610. Horseshoes and pads. "Star". Michael Hallanan, New York city. May 1, 1900.

34,685. Cement and plaster. "Climax". Acme Cement Plaster Co., St. Louis, Mo. May 22, 1900.

DESIGN PATENTS.

32,542. Core for vehicle tires. Howard C. Tyler, Philadelphia, assignor of three-fourths to Rulief P. Smock, Hubbard F. Weeks, and Frank C. Du Bois, Freehold, N. J. April 17, 1900.

32,765. Shoe heel. Henry B. Haigh, New York city. The design for the heel of a shoe. May 29, 1900.

32,766. Shoe sole. Frank P. Maynard, Claremont, N. H. The design for a shoe sole. May 29, 1900.

THE ENGLISH PATENT RECORD.

APPLICATIONS.—1900.

7,467. Frank Gladstone Waddington and William B. E. Rule, 111, Hatton garden, London. Improvements in elastic tires for vehicle wheels. April 23.

7,483. David Malcolm Bowyer-Smyth, 46, Lincoln's Inn fields, London. Improvements in tires. April 23.

7,507. Henri Tanghe, 18, Southampton buildings, London. Improvements in tires for vehicle wheels. April 23.

7,521. Hermann Fiedeler, 24, Temple row, Birmingham. Improvements in pneumatic tires for the wheels of common road vehicles. April 24.

7,631. Henry James Doughty, 64, Barton arcade, Manchester. Improvements in molds employed in the vulcanization of hollow articles of rubber. April 24.

7,633. John Thomas James, 24, Temple row, Birmingham. Improvements in pneumatic tires. April 25.

7,673. Morland Micholl Dessau, 111, Hatton garden, London. Improvements in pneumatic tires. April 26.

7,889. Frederick Leaver, 77, Beaconsfield villas, Brighton. Improved hose winding machine and reel. April 28.

7,950. Walter Thomas Hey and Ernest Bailey, 4, Lowousegate, York. Means of coating cork with rubber for the purpose of producing a substitute for solid rubber. April 30.

8,023. Henry Allott, 4, Corporation street. Manchester. Improvements in elastic tired wheels. May 1.

8,054. Joseph Lunant, 111, Hatton Garden, London. Improvements in pneumatic tires. May 1.

8,172. Charles Merington, 87, Albert road, London. Improvements in pneumatic tires. May 3.

8,197. Richard Henry, Jr., 100, Wellington street, Glasgow. Improved pneumatic tree for boots and shoes. May 3.

8,272. Josiah Harris, 36, Chancery lane, London. Improvements in road vehicle wheels and tires. May 4.

8,515. Henri Hamet, 53, Chancery lane, London. Improvements in and apparatus for the manufacture of India-rubber goods. May 8.

8,567. *Same.* Apparatus for vulcanizing articles of Caoutchouc. May 9.

8,568. William Velden, 53, Chancery lane, London. Improvements in horseshoes. May 9.

8,596. R. L. Crawford, Compton House, Church street, Liverpool. Improved means of inflating pneumatic tires, with apparatus therefor. May 10.

8,603. Thomas Feather, Sunbridge chambers, Bradford. Improvements in tires for cycles and vehicles. May 10.

8,636. Morland Micholl Dessau, 111, Hatton garden, London. Improvements in pneumatic tires. May 10.

8,737. Iltyd Isaac Redwood, 322, High Holborn, London. Improvements in hose reels. May 11.

8,757. Bernard Birnbaum, 55, Chancery lane, London. Improvements in the printing or ornamentation of India-rubber coated fabrics. May 11.

8,837. Henry Harris Lake, 45, Southampton buildings, London. Improvements in elastic tires for vehicles. May 12.

8,872. Oliver Imray, Birkbeck Bank chambers, Chancery lane, London. Manufacture of alkylated coloring matters of the acridine series. [The Society of Chemical Industry in Basle, Switzerland.] May 14.

8,902. Charles Petitjean and George James Walkes, 19, Lower Ford street, Coventry. Improved valve for pneumatic tires. May 15.

9,038. John Kingsford Field and James Panton Ham, 32, Essex street, Strand, London. Waterproof and acid-proof composition. May 16.

9,066. Edward William Holt, 1, Queen Victoria street, London. Improved air check valve for the inflation of tires. May 16.

9,149. Charles H. Merwarth and Frederick Conlin, 77, Chancery lane, London. Improvements in gaskets or packing. May 17.

9,158. Alfred F. Maxfield, 353, Nechells Park road, Birmingham. Improved method of attaching the outer covers of pneumatic tires to the rims. May 18.

9,167. Henry James Doughty, 64, Barton arcade, Manchester. Improvements in apparatus for the manufacture of covers for tires. May 18.

9,176. Harry Mullard, 37, Perry street, Wednesbury. Improvements in clips or holders for pneumatic tire inflators. May 18.

9,207. Thomas Bass and William Turner, 9, Warwick court, London. Improvement in teats for nursing bottles. May 18.

9,227. Arthur Thomas Collier, 11, Southampton buildings, London. Improvements in pneumatic tires for vehicles. May 18.

9,335-9,336.—Edward J. Buckingham, 82, Mark lane, London. Improvements in tires for vehicles. May 21.

9,412. William Greene, 23, Coleman street, London. Improvements in non-puncturable pneumatic tires. May 23.

9,418. Arthur G. Reynolds, 23, Southampton buildings, London. Improvements in means for repairing pneumatic tires. May 23.

9,432. Christie T. Osborne, 6, Lord street, Liverpool. Improvements in tires for cycles and vehicles. May 23.

9,545. Martin T. Minogue and Thomas G. Hunter, 47, Lincoln's Inn fields, London. Improvements in elastic or flexible wheels for bicycles and vehicles. May 24.

9,546. William D. McNeil, Clun House, Strand, London. An improved method of constructing and mounting resilient tires for bicycles and vehicles. May 24.

9,598. Clarence Austin Chandler, 40, Chancery lane, London. Improvements in a machine for grinding drills. May 24.

9,618. Henry G. N. Gardner, Kingsland Works, Boxmoor, Herts. Improved method of packing and boxing a preparation of Caoutchouc, known as "dental rubber." May 25.

PATENTS GRANTED.—APPLICATIONS OF 1898.

22,877. Tire made of a Series of Hollow Elastic Balls Greatly Compressed. Warden, F., Haverstock hill, Middlesex. February 21.

22,961. Pressure and Vacuum Gages. Hervais, E., 9, rue Saint Sebastian, Paris. February 21.

23,105. Rolling Tires, etc. Carrier, W., 46, Oxford street, Sheffield. February 21.

24,635. Rubber Horseshoe. Fitter, J. H., Leadenhall market, London. February 21.

24,848. India-rubber Waste, Utilizing. Zingler, M., Belsize park, London. February 21.

23,135. Stretching Pneumatic Tire Covers. Thomas and William Caldwell Syndicate, Warrington, and Johnstone, L., Bury, both in Lancashire. February 28.

23,140. Valve. Hardy, E. P. L., Liverpool. February 28.

23,144. Lining for Double Tube Tire. Starley, W. A., and Hubbard, C., Coventry. February 28.

23,235. Tire Protector. Glew, J. H., Albion Works, Camberwell, London. February 28.

23,343. Spring Tire. Laspee, H. de, Wandsworth, London. February 28.

23,470. Pneumatic Tire. Schroeder, F. W., 19, Adam street, Adelphi, and Car Boyd, W. J. H., Savage Club, Adelphi terrace, both in London. February 28.

23,521. Pneumatic Tire. Collier, A. T., St. Albans, Hertfordshire. February 28.

23,897. Puncture Detector. Macklin, A. G., Brixton, London. March 7.

23,936. Method of Attaching Pneumatic Tires to Rims. Pulbrook, A., and Pulbrook, E. H., 5, Grayhound mansions, London. March 7.

23,936A. Pneumatic Tire. *Same.* March 7.

23,981. Waterproof and Acid-proof Compositions. Stringfellow, J. H. W., Hackney, Middlesex. March 7.

SOME INDIA-RUBBER INTERESTS IN EUROPE.

RUBBER GOODS AND THE NEW GERMAN TARIFF.

IN regard to the proposed new German tariff schedule, a Berlin correspondent of THE INDIA RUBBER WORLD writes: "It is not possible yet to say how rubber goods will be affected, as nothing has yet been published officially. Hearings of the leading manufacturers are still taking place at the ministry of the interior. There is no doubt that the new schedule will be very thorough and minute in its details. I doubt, however, whether it will greatly affect American manufactures. It will be a just, but by no means prohibitive measure. The days have passed in Germany when the cheapest American goods sold best. First class American goods now sell on their merits. It must also be borne in mind that the German public at large is now much better able to pay prices than two years ago. At present there is a business 'boom' in almost all branches. American rubbers, for instance, are at present more than holding their own against Russian and German competition. By the way, the new tariff bill cannot possibly be presented to the reichstag before the fall session, and will first be referred to a committee, so that in my opinion, it cannot become a law, or go into effect, for a year at least. American rubbermen ought by this time to have obtained a firm footing in Germany, but of course they have no time to lose."

FIRE IN ANOTHER GERMAN FACTORY.

EARLY on April 27 a fire broke out in one of the repairing shops of the extensive factory of Felten & Guilleaume Carlswerk Actiengesellschaft (Mulheim o/Rhine, Germany). The fire spread a portion of the India-rubber otdepartment, destroying the building in question and with the stocks of raw India-rubber, as well as the half finished manufactures still on the machines. Thanks to a favorable wind and the position of the building near the boundary wall of the large works, the company's other departments have not suffered, so that there will be no interruption in the cable factory, wire mill, wire goods factory, galvanizing department, wire roping, etc.

COST OF RUBBER AND FACTORY PROFITS.

THE twenty-seventh annual balance sheet of the Gummiwaarenfabrik Voigt & Winde, Aktiengesellschaft, Berlin, is accompanied by some details in respect to the cost of crude materials, as affecting the profits of the company. The annexed comparison is afforded, for the past ten years, showing on the one hand the price of fine Pará rubber (in marks per kilogram) on December 31 in each year, and on the other hand the yearly rate of dividends. During the first seventeen years of the company's existence, the yearly rate of dividend ranged between 4 and 14 per cent., the average reaching 7.8 per cent.

YEAR.	Cost of Rubber.	Dividend.
1890....	7.25 M	7%
1891....	6.20 M	8%
1892 ...	6.50 M	8%
1893....	6.50 M	8%
1894....	7 M	7%
1895 ...	7.30 M	6%
1896....	7.70 M	6%
1897....	7.90 M	6%
1898....	9.90 M	6½%
1899....10.	M	6½%

THE SILVERTOWN COMPANY'S REPORT.

AT the half yearly meeting of the India-rubber, Gutta-percha, and Telegraph Works Co., Limited (London), on May 31, the chairman stated that the company's contracting business showed an increase compared with the same months in the previous year. They had had more submarine cable work to do. Their cable steamer *Silvertown* was loading, and would start soon with a section of about 1000 miles of cable to be laid between Nova Scotia and New York. The expected litigation between the Dunlop Pneumatic Tyre Co., Limited, and the Palmer tire company, in which latter the India-rubber company are interested, had been satisfactorily arranged. From another source it is learned that "the long standing and bitter litigation between the Palmer and Dunlop tire interests in England has been amicably settled, the appeal of the Palmer tire company from the sweeping judgment of Justice Wills in its action against the Dunlop company for infringement of the Thomas and Trigwell patents, and also the Palmer fabric patent, and the action of the Dunlop company for cancellation of the license held by the Palmer company under the Bartlett patents on the ground of infraction of terms, having been by mutual consent withdrawn. The terms of the agreement have not been made public, but by this settlement the Palmer company is once more in a position to continue trading unhampered by the distractions and worries of impending litigation."

SOME HISTORY OF ONE GERMAN RUBBER FACTORY.

RECENT additions to the office library of THE INDIA RUBBER WORLD include a series of catalogues of what is now the Harburger Gummi-Kamm Compagnie—Dr. Heinrich Traun, proprietor (Hamburg, Germany), prepared for distribution at various international expositions, viz.: London, 1862; Vienna 1873; Hamburg, 1889; and Chicago, 1893. They form an interesting contribution to the history of the development of the hard rubber industry in Germany, and of the firm here named which was an outgrowth of the cane and whalebone business established at Hamburg in 1818 by Heinrich Christian Meyer. His eldest son, Heinrich Ad. Meyer, established a branch of the business in New York in 1841, in which he was joined later by Conrad Poppenhusen, who later acquired the hard rubber patent of Nelson Goodyear and started the hard rubber industry at College Point, Long Island. The hard rubber business was introduced at the same time at Hamburg, gradually replacing the other business of the Meyer family. In 1835 Friedrich Traun, a son in law of the original Meyer, became a partner in the Hamburg business, and in 1863 Heinrich Traun, a son of Friedrich, entered the business, the latter having since become proprietor. Five persons were employed in 1818. In 1873 the number had increased to 1150. There are now about 1400. Heinrich Traun began his studies on "Kautschuk" early in life, as is evidenced by the fact that his inaugural dissertation at the university in Göttingen in the year 1859, when he won his degree of doctor of philosophy, was upon this subject. This has been added to our library, forming an octavo pamphlet of 69 pages; also, a pamphlet report on the benevolent institutions of the Harburger Gummi-Kamm Compagnie, and a full set of the company's illustrated trade catalogues. It may be added that Dr. Traun's two sons are associated with him in the present management of the business, with a view to continuing it after his lifetime. Dr. Traun said recently to a member of THE INDIA RUBBER WORLD staff that he could at various times have secured much additional capital for his factory, and thus have enlarged its scope, by forming a public company, but that he had preferred to retain control of it within his family.

INCREASE OF CAPITAL.

THE Colonial Rubber Société Anonyme announce the emission of new shares, in order to increase their capital stock from 2,610,000 to 3 500,000 francs. The factory of the company, situated at Gand, Belgium, is that operated formerly by the Messrs. de Schampelacre. They have also another at Cologne.

A RUBBER SUBSTITUTE FROM THE RHEA PLANT.

THE following paragraph recently appeared in a number of American newspapers: "A syndicate headed by Charles R. Flint, of New York; H. B. Endicott, of Boston; and J. H. Selz, of Chicago, has acquired from an English syndicate the control of the Cordner patents for the manufacture of Rhea rubber in the United States and Canada, and it purposes exploiting the same by the organization of a stock company with $10,000,000 capital. The negotiations between the interests which controlled the patents covering the Cordner method of manufacturing artificial rubber from the Rhea fiber, and which have resulted in the turning over of the rights to the syndicate headed by Mr. Flint, have been in progress since last October. The firm of Schofield, Whicher & Co., of Boston, was the medium through which the deal has been carried through. The capitalization of $10,000,000 has all been underwritten and no portion of it will be sold to the public for a number of months. Under the process controlled by the syndicate, a substance is produced which has the appearance, odor, and utility of crude rubber, and it is claimed that it can be manufactured at a fraction of the cost per pound of Pará unwashed. The products will be manufactured in New Jersey."

The Editor of THE INDIA RUBBER WORLD lost no time in calling upon the parties named, and succeeded in getting a large sample of the gum and also what information the promoters had regarding it. Both Mr. Flint and Mr. Whicher were very frank in saying that they did not know definitely the value of the gum to-day. It costs, manufactured, as near as they can figure, 13 or 14 cents per pound, and as soon as possible they intend to discover exactly how much it is worth in all kinds of manufactured rubber goods. They do not expect it to take the place of Pará rubber in elastic bands, for instance, but in many other lines where waterproof qualities, ductility, and a certain amount of resiliency are required, they believe that it will be found of great value.

The "rubber substitute" which these gentlemen are about to exploit is not a substitute in the ordinary acceptance of the term. It is rather a combination of gums, the manner of combining being the invention of Mr. W. J. Cordner, of England, who has taken out patents all over the world, both for the processes used in the manufacture of the Rhea rubber, and for the material itself. The basis of Mr. Cordner's discovery is very simple. It is well known, of course, that rubber is a hydrocarbon. In the cheaper gums now in use, like Pontianak, however, the carbon is almost entirely wanting. Mr. Cordner, therefore, takes a certain quantity of Pontianak, adds to it a modicum of Balata, and mixes this compound with the gum which is obtained from the Rhea (or ramie) plant in preparing the fiber for use, and which gum hitherto has not been regarded as having any value. This mixing is done in ovens, and the resultant raw material is a fawn colored gum which is quite plastic, and which, under manipulation, is soft, ductile, and slightly elastic. It is claimed by the inventor that it can be compounded and vulcanized like Pará rubber, only of course not to such an extent. The American exploiters have for some months past been having it tested in mechanical goods and in boots and shoes. According to their report, rubber shoes were made at the Candee factory seven or eight months ago, in which 40 per cent. of the rubber was taken out, and its place filled by Rhea rubber, and shoe experts could not tell the difference between shoes made with the regular compound, and those containing the new substitute. In mechanical goods, it is said that excellent samples of valves, mats, and soles have been made of the new material, without the addition of either crude or reclaimed rubber. The present plan of the owners of the American and Canadian patents is not to float a company or to try to sell stock. They have simply underwritten the scheme, and propose to import enough of the Rhea product from the English factory to test it thoroughly in all lines of rubber goods. Most of this experimenting undoubtedly will be done at one of the factories of the Rubber Goods Manufacturing Co., at Passaic, N. J. When it is shown that the gum is all that is claimed for it, it will be put upon the market, very probably through the same channels that to-day market crude rubber. So far, the only company incorporated to manufacture and market this gum is that in England, is known as the American Rhea Rubber and Insulite Syndicate, Limited, which has a factory at Harrow, and offices at 17, Shaftesbury avenue, London. It is said that a Belgian company is soon to be incorporated, the patents having been sold there. A French company is also soon to be started, and the Swedish patent is said to be sold.

It is reported that Mr. Fred Lamprough, who came over to America with Mr. W. J. Cordner in order to demonstrate the usefulness of the gum to the American purchasers, received a handsome fee for his services. Mr. Lamprough will be remembered as the inventor of a substitute for India rubber and Gutta percha, known as "Volenite."

THE RHEA OR RAMIE PLANT.

THE fiber plant known as *rhea* in Assam and elsewhere in India, *ran* in the Shan states, and *ramie* in the Straits Settlements, is allied to, if not identical with, the famous *China grass*, which for thousands of years has been used in the primitive textile manufacture of the Far East. Botanists designate the plant which grows wild throughout China and is cultivated in many of the provinces as the *Boehmeria nivea* (Linnaeus), and the plant native to Sumatra and other tropical countries as the *Boehmeria tenacissma* (Roxburgh), but it is probable that they are one and the same thing, changed somewhat under greatly differing climatic conditions. The fiber from these plants is utilized for clothing of fine and coarse texture, burlaps, sail cloth, fishing nets, towing lines, etc., being the strongest textile fiber known and withstanding water without injury for a longer period than any other. In tropical regions enormous crops are produced, the plants being cut several times a year for ten years or more before a new planting is required; and 70 tons of stems per acre is mentioned as a possible yield under favorable conditions.

The utilization of this fiber in China by hand work, is shared by women and children—the lowest priced labor in the world. But a very grave difficulty has been met in the handling of ramie, or rhea, on a large scale, for the want of an expeditious, cheap, effective, and satisfactory cleaning machine. If the problem were one of decortication alone, the problem would be simple. But there is necessary also a degumming machine. The fiber produced from ramie by the decorticators is imbedded in a mass of gum and resinous matter, insoluble in water, which must be removed before the white *filasse* suitable for textile purposes can be obtained. A chemical process is involved at this stage, after which a beautiful white fiber is obtained, which is first dried and then packed for shipment. The expense is thus

raised to such a point that £42 per long ton is mentioned as the price in England of fiber ready for manufacture. The difficult nature of the mechanical problems referred to is indicated by a statement that a Mr. Ferguson, of England, after spending £30,000 on a decorticating machine, estimated that £500,000 would be needed to place it on a commercial footing.

There are favorable reports, however, in regard to various more recent machines, and if it should now prove that the once troublesome ramie gum has a high commercial value, a renewed impetus to ramie cultivation may be looked for, together with a greatly reduced cost of the fiber. THE INDIA RUBBER WORLD of January 15, 1892, contained an article on "Ramie Fiber in Hose, Packing, and Belting," suggesting the desirability of this fiber in the manufacture of the classes of goods named. Hitherto, however, the cost of the fiber has rendered its use, in competition with cotton duck, out of the question.

RHEA IN THE ENGLISH PATENT OFFICE.

THE British patent records show that William James Cordner, of 17, Shaftesbury avenue, W., London, on July 4, 1899, filed an application for a patent (No. 13,846) for "Improvements in and relating to the manufacture of a composition from Rhea fiber, applicable for electric insulation and other purposes." A later application, dated October 19, of the same year (No. 20,934), was for "The synthetic production of rubber." The provisional specifications of the first patent were reported in *The Illustrated Official Journal* of July 26, 1899, to have been accepted. The same report was made in regard to the second patent on November 22, 1899. This may be considered as equivalent to the issue of the patents.

The offices of The Rhea Fibre Treatment Co., Limited, are or were recently at 17, Shaftesbury avenue, W., London, which happens also to be the address given of Mr. Cordner, and, more recently, of The American Rhea Rubber and Insulite Syndicate, Limited, which is referred to above. Something was published, not long ago, about the Fibre Treatment company having a new degumming plant at Castleton, near Rochdale, England, involving the Gomess process. The London *Times* of August 10, 1896, devoted an article to this company and to the success of A. F. B. Gomess, an English chemist born in London, in having solved the problem of treating ramie with solutions of zinc for the elimination of the gum. It may be mentioned that Mr. Gomess has taken out several patents in England relating to the chemical treatment of ramie, the applications having been numbered: 18,358 (1892); 15,945 (1893); 810 and 19,485 (1894); 10,936 and 28,266 (1896). What connection, if any, there may be between the Gomess process for treating Rhea and Mr. Cordner's application of the Rhea gum to industrial purposes has not been made plain.

VELVRIL—A NEW SUBSTITUTE FOR RUBBER.

THE substance to which the name "Velvril" has been given, and which is designed as a substitute for India-rubber and Gutta-percha, was described at length before the Society of Chemical Industry of England at a recent meeting, by the inventor, Walter F. Reid, F. I. C., F. C. S., who exhibited also samples of various articles manufactured from this material.

The basis of "velvril" is a drying or semi drying oil, which is nitrated by strong nitric acid. A nitro compound is formed, containing from 4 to 5 per cent. of nitrogen, and this is thoroughly purified until all traces of free nitric acid are removed. In practice the oils used are linseed oil, and castor oil, but Mr. Reid states that, owing to the unstable nature of linseed oil, castor oil is preferred. The other ingredient used is a nitro cellulose of a very low degree of nitration.

Without following the writer through the various details of treatment with nitric acid, which modify the properties of linseed oil and castor oil in different respects, it may be mentioned that, one of the ingredients of the "velvril" material being a liquid and the other a hard solid substance, the hardness of the resulting compound may be modified to any extent by altering the proportions in which these ingredients are mixed. Any consistency may be obtained, from that of celluloid or vulcanite, to a soft elastic substance like the softest India-rubber. For this reason it has been difficult to find any single name which could be applied collectively without giving rise to misunderstanding. The word "velvril" is the trade mark of the company and not the name of the material. Each mixture is known by a letter and number. The mixture which most closely resembles Pará rubber in texture, contains about two parts of nitrated oil and one part of nitro cellulose. In thin pieces it is of an amber color and for special purposes it may be made nearly colorless, in thin layer. According to Mr. Reid, the elasticity of his samples of this class was about 25 per cent., and, although the resiliency was not so great as that of India-rubber, yet the material was, nevertheless, quite elastic.

Articles made of "velvril" materials, he stated, may be placed in boiling water without losing their shape, although with the higher temperature they become somewhat more supple. By great pressure and heat combined, however, these materials can be molded into any desired shape. There are, therefore, two methods of producing solid articles from the new material; one is that just described, the other is the molding of a paste or solution, which has been rendered plastic by the addition of a small quantity of solvent. In the former case the articles are finished ready for use as soon as they leave the press. In the latter, the solvent must be removed by evaporation, which is done by placing the article in a room heated to about 100° F.

Mr. Reid exhibited specimens of machine belting, made of "velvril" material, such as had been running for more than two years under trying conditions, but without showing appreciable signs of wear. The fabric which forms the basis is a cotton canvas of special make. This is saturated and coated with a solution of "velvril" material, and is then folded over to the required thickness and cemented together by means of specially constructed machinery. Such belting is stated to have very great strength, is waterproof, and unaffected by oil or climatic changes. It has been found specially suitable for hot climates.

The prepared canvas from which the belting is made can be used for a variety of other purposes. Trunks and portmanteaus made of it do not, like leather, become moldy in a damp climate. Ground sheets of "velvril" have been made for the British soldiers in camp in South Africa. It has also been used for horse covers, and, in a different mixture, for printers' blankets. "Velvril" has been used for insulating wire, particularly by applying it in a continuous mass without seams. It is said to be specially suitable for hose or tubing for the conveyance of oils or gas. Other uses mentioned are the manufacture of cement, varnish, paint, and safety fuses. Paper of all kinds can be coated and rendered waterproof and grease proof with "velvril," and it has been employed in the manufacture of cartridges.

The various goods referred to are manufactured by The Velvril Co., Limited, Lonesome, Streatham common, London, S.

W., of which the Mr. Reid above mentioned is the managing director.

The samples of velvril which Mr. Reid has very kindly sent to THE INDIA RUBBER WORLD have been examined with a great deal of interest and considerable care. The product is certainly quite elastic, more so than any artificial product that we have yet seen. It is also quite tough, and the indications are that the material will have a wide commercial application. It is to be remembered, however, that it is not rubber, and in applying it to the arts, new machinery and new processes will be necessary before it can be made commercially profitable. From Mr. Reid's very interesting lecture, however, we judge that the Velvril company are awake to this necessity and are making excellent progress.

Mr. Reid writes to THE INDIA RUBBER WORLD: "We do not recommend our substance as a 'rubber substitute' in the sense of a rubber adulterant. It stands on its own merits and is being manufactured on a large scale as an independent material, and not for admixture with any other substance. Its durability is undoubted, and we are already doing a considerable trade, especially for machine belting."

A MEXICAN SUBSTITUTE FOR RUBBER.

A PRESS report from San Luis Potosi, Mexico, said, recently: "A rubber factory is in course of construction n this city for the extensive preparation of rubber from a Mexican weed by a newly discovered process. The plant is valued at $100,000 and is owned by a stock company, the principal stockholders of which are the Messrs. Soberon."

Later a letter was received by THE INDIA RUBBER WORLD rom Señor Matias Hernandez Soberón, of San Luis Potosi, saying, in part: "In answer to your letter, I beg to say that a factory is being established here for the manufacture of rubber rom raw material in hand and to be had in these states. I am not able to say, however, when the factory will start up. The enterprise belongs to relatives of mine. When the business is profitably established I shall inform," etc.

The evident basis for the new enterprise is a discovery for which Captain William Prampolini, of San Luis Potosi, has obtained a patent in the United States, under the title "Composition of Matter." His claims, condensed, are to the effect that "This composition is a substitute for India-rubber, and consists of the gummy matter of the shrub called *Synantherotas Mexicanas* by botanists, and by the Indians, 'Yule,' 'Copalin,' and 'Jiguhite.' The gummy matter is obtained by using benzine, gasoline, or other hydrocarbons. It may be vulcanized perfectly, and is better than most India-rubber, because it is free from all mechanical impurities, and needs no preliminary cracking, grinding, and washing. It is cheap, easily obtained, and saves machinery in manufacture."

This plant is referred to as not yielding a milky juice, yet the bark contains a large quantity of gummy matter—as high as 40 per cent. by weight—which may be extracted as above stated. It is a shrub about three feet in height, found throughout central Mexico. The discoverer has named the new material "Twentieth Century Gum." The number of the patent is 645,331, dated March 13, 1900.

INDIA-RUBBER has become the most important article of export from Madagascar. The value reached $427,138 in 1899, of which $202,145 worth was shipped to France and $204,993 to all other countries. In 1896 the exports of Madagascar rubber to France amounted only to $31,626, according to the United States consul at Marseilles—Mr. R. P. Skinner.

SOME WANTS OF THE RUBBER TRADE.

INQUIRIES.

[102] THIS letter comes to THE INDIA RUBBER WORLD from Cape Town, South Africa: "We should like the names and addresses of manufacturers of the rubbers and iron buttons of the Lightning bottle stopper, from whom we should wish samples and price per 100 gross packed and delivered f. o. b. at New York. Also can you give any information where we can get the necessary appliances for manufacturing the rubbers ourselves? We have machinery from America for making the wire parts, and we sometimes get stuck for the want of the rubbers."

[103] From Baltimore: "We are desirous of getting the address of parties who manufacture sponge rubber."

[104] "Please put an inquiry in your paper for the addresses of manufacturers of rubber tissue."

[105] "Do you know of any one who manufactures a blue for rubber that will stand the heat of vulcanization without being destroyed? If possible, we should like to know of a color that can be used with both hard and soft rubber."

[106] We are in receipt of an inquiry from manufacturers of insulated wire as to how talc and soapstone are used in the manufacture of this material.

]107] "Please give us the names of the leading handlers of crude India-rubber in the United States, specifying which firms are importers."

[108] "Will you kindly inform us of the name of a manufacturer who makes looms, for weaving flat woven linen hose?"

[109] "Can you give me any information as to who makes stockinette sheeting?"

[110] "We have an inquiry from a customer for rubber to be used under rugs and on hard wood floors. We imagine that what would be required would be a corrugated matting, with the corrugations on both sides."

[111] "Can you advise us who are the makers of the metal hooks and handles, with wood grip, such as are used on elastic rubber exercisers?"

[112] "Where can we find a manufacturer of glass goods for rubber specialties, such as breast pumps and nursing bottles?"

[113] "We are very anxious to get hold of a formula for lubricating packing. We probably ought to know this, but do not, but we believe we are not too old to learn."

[114] "We should like to have the addresses of concerns that make machines for weaving or knitting cotton rubber lined hose."

[115] "Kindly give me the names and addresses of the leading manufacturers of rubber collars, cuffs, bosoms, etc., and especially any new ones, if any, just placing their goods on the market."

[116] From Australia: "There is a cheap grade rubber insertion sheet packing imported to Australia, costing about 10 cents per pound, f. o. b., New York. We are open to buy such a line in good quantities."

THE planting of India-rubber will be included in the operations of the new agricultural experiment station in Porto Rico, for which the United States congress recently appropriated $15,000.

MENTION is made in the correspondence of THE INDIA RUBBER WORLD of a plantation of 30,000 Pará rubber trees, over seven years old, owned by D. B. Riker, Santarem, on the Amazon river, in the state of Grão Pará, Brazil.

MAKING RECLAIMED RUBBER IN ENGLAND.

THE Rubber Chemical Co., Limited, was registered in England on May 1, with £30,000 capital, to carry on the business of producers, workers, manufacturers, and manipulators of so-called "reclaimed India rubber," chemical manufacturers, manufacturers of India-rubber, Gutta-percha, leather and other goods, electricians, etc. The first three directors are Thomas Barclay, John Barclay, and Alfred Southall, who are members of a well known limited company of manufacturing chemists in the Birmingham district. In a letter to THE INDIA RUBBER WORLD one of the shareholders writes:

"The objects of the company are to make so called reclaimed rubber, and to handle and deal in all chemicals made use of by rubber manufacturers. The company have also purchased the business carried on hitherto under the style of the Atmoid Precipitate Co., which has already a considerable connection with rubber manufacturers. The company are at present carrying on at the Seringa Mills, Mitcham [in the vicinity of London], the work of producing reclaimed rubber, which is being done under the best possible conditions, and by the use of the latest and most approved methods. I may say that the company are also about to place upon the market substitutes of a special character, which I think will recommend themselves after they once have been given a trial. Plant is being laid down also for putting upon the market such articles for the use of rubber manufacturers as purified sulphur, magnesia, red antimony, specially prepared oxide of zinc, etc. The production of good quality reclaimed rubber necessitates the use of a well equipped rubber mill, and in having this the company are enabled to make experiments with and trials of the chemicals which they propose to offer, in a way which is impossible with the ordinary chemical manufacturer."

WANTS TO TAKE A HAND.

WE have a letter from Europe, referring to the correspondence published in our last issue under the heading "Rubber Scrap in America and Abroad," which concludes: "If there should be any inclination on the part of some of the rubber manufacturers in the United States to carry out the suggestion with regard to the erection of rubber reclaiming works in England, I should be quite prepared to take a hand in it, and think that my experience in this trade may prove of value to your friends."

HIGH GRADE THERMOMETERS.

ONE of the most striking features, in the progress made by American manufacturers in the markets of the world, is the success attending the efforts made by manufacturers of technical and scientific instruments. In former years the Germans practically controlled the trade of the world on these lines, but American manufacturers to-day are making such rapid progress that they seriously threaten in many branches to replace German and English makers. The most encouraging feature is that in nearly every instance it is upon the superior quality of the American product. This is suggested particularly through the recent successes of the Hohmann & Maurer Manufacturing Co., (Rochester, N. Y.) makers of high grade thermometers for all mechanical, engineering, and scientific purposes; in competition with both German and English makers they have recently secured large orders from Russia for the equipment of beet sugar factories and from Japan for the equipment of two rubber works. Within the last month they have shipment to South Africa for the equipment of a large brewery, to the Argentine republic for cold storage purposes, and to Australia for cold storage and meat packing. In nearly every instance the orders have come to them solely on the reputation which their goods have acquired and without any direct effort being made to acquire the business. Formerly the theory on export business was that, in order to acquire a hold in the markets of the world, American manufacturers must be able to produce something at a less cost than was being supplied by other makers. It is a gratifying sign to note that the present tendency is more directly in the line of seeking the foreign trade upon the quality of the product rather than upon its price.

NEW TRADE PUBLICATIONS.

THE AMERICAN WRINGER CO. (No. 99 Chambers street, New York) have gradually added to the production of clothes wringers the supplying of mechanical rubber rolls of special sizes and designs, until a large business has developed in their new line, necessitating the building of a large addition to their factory at Woonsocket, R. I. They have issued a special illustrated catalogue of "Power Wringers and Rubber Covered Rolls," the latter being adapted to bleacheries, dye and print works, lithographers, cotton mills, woolen mills, felt and shoddy mills, paper mills, tobacco, oiled clothing, glucose, sugar, tin plate and sheet iron manufactures, leather splitting, unhairing, staking, wool scouring, quilling, and wood working machines, etc. [6⅛"×9¼". 20 pages.]

THE CALUMET TIRE RUBBER CO. (Nos. 116 128 North Lincoln street, Chicago) issue a pamphlet describing their "Calumet" rubber vehicle tire, with retaining band and fastener, in connection with which is described also their patented apparatus for applying the tire. [4"×7". 48 pages.]

THE PHILIP CAREY MANUFACTURING CO (Lockland, Ohio), send us an illustrated descriptive catalogue of "Carey's Coverings," for steam pipes and boilers, together with their magnesia flexible cement roofing, etc. This firm are large consumers of asbestos, and a certain amount of India-rubber is used in connection with some of their products. [4¾"×6¾". 40 pages.]

ALSO RECEIVED.

THE Ohio Wringer Co., Springfield, Ohio=[Circulars of "Acme," "Buckeye," and other wringers.]

Neverslip Manufacturing Co., New Brunswick, N. J.=Vulcanized Rubber Horse Shoe Pads. 8 p.

Asbest-und Gummiwerke Alfred Calmon Aktiengesellschaft, Hamburg=[Sheet of views of factory buildings and interiors.]

RUBBER AT THE PARIS EXPOSITION.

AMONG the American rubber manufacturers represented at the Paris Exposition are the following:

Cleveland Rubber Works, Cleveland, Ohio	Class 19, 21.
New Jersey Car Spring and Rubber Co., Jersey City, N. J.	Class 19.
Robins Conveying Belt Co., New York	Class 19, 21.
Boston Belting Co., Boston, Mass.	Class 21.
American Commercial Rubber Co., Elizabeth, N. J.	Class 23.
New York Insulated Wire Co., New York	Class 23, 26.
American Hard Rubber Co., New York	Class 24, 25, 26.
India-rubber and Gutta-percha Insulating Co., Yonkers, N. Y.	Class 26.
National India Rubber Co., Bristol, R. I.	Class 26.
Okonite Co., New York	Class 26.
Philips Insulated Wire Co., Pawtucket, R. I.	Class 26.
Safety Insulated Wire and Cable Co., New York	Class 26
Simplex Electric Co., Boston	Class 26

CLASSIFICATION—GROUP IV.

Class 19—General Materials and Processes of Mechanics.
Class 21—Various Mechanical Apparatus.
Class 23—Mechanical Production and Utilization of Electricity.
Class 24—Electro-Chemistry.
Class 25—Electric Lighting.
Class 26—Telegraphy and Telephony.

NEWS OF THE AMERICAN RUBBER TRADE.

RUBBER GOODS MANUFACTURING CO.

AT a meeting of the directors in New York on June 1 the regular quarterly dividend of 1¾ per cent. was declared on the preference shares, payable out of the earnings of the current fiscal year, on June 15, to shareholders of record on June 9. This is the fifth dividend on these shares—four quarterly dividends, aggregating 7 per cent., having been declared on the business of the first year.

On the same date a dividend (No. 1) of 1 per cent. was declared on the common stock, payable July 15 to shareholders of record on July 9.

The amounts to be distributed in these dividends will be, according to the latest published statement of the capital of the company, as follows:

	Capital.	Dividend.
Preferred stock.....	$ 7,621,300—1¾%	$133.372.75
Common stock	15.134.600—1 %	151,346 00
Total	$22,755,900	$284,718.75

The treasurer of the company, Wallace B. Flint, reported to the board of directors at their meeting as follows: Profits for year 1899, $1.409.421; preferred stock dividend and expenses paid, $549 779; balance undivided earnings, $859 642. From this amount the dividends are deducted, leaving a balance of undivided earnings for the year 1899 of $574 807. The earnings for the first four months of this year were $800,000, leaving a surplus of $1,374.807. The earnings for the six months from January 1 are estimated at $1,200,000, based on the earnings for the first four months.

Secretary W. A. Towner is quoted as saying: "The dividend of 1 per cent. on the common stock is not a quarterly dividend. The company had money enough on hand to make the dividend quarterly, but preferred not to tie it up by such a declaration. Another dividend on the common will probably be declared in the fall."

Arrangements are being made for listing the securities of the company on the New York Stock Exchange within a short time.

RUBBER SCRAP TRADE IN THE WEST.

THE increase in the price of rubber scrap has led to greater interest in the collection of such material in all parts of the country, and extended the area in which collections are made. A letter to THE INDIA RUBBER WORLD from a firm engaged in this trade at Omaha, Neb., says:

"There has been an increase in the growth of the rubber scrap trade in this district of about 50 per cent. in the last three years. It has been the custom of the dealers of this section to ship their goods to the Chicago market. From 150 000 to 200,000 pounds of scrap rubber are shipped per month. The mills up to the present time have not given the dealers the advantages that they have to the eastern dealers; hence the trade is not in as healthy a condition as it would be if the manufacturers extended a little more protection here. Since we have entered the rubber field the quantity of shipments from Omaha has increased largely by our securing mill connections instead of shipping direct to the local market, so that the scrap rubber business has a bright outlook for large increase and substantial foundations. We are a long distance from the eastern market, and the price on scrap fluctuates to quite an extent, and sometimes we are not advised as quickly as it would be of advantage to us to know the condition."

H. H. SHEPARD, GENERAL MANAGER.

AT a meeting of the directors of the National India Rubber Co., at Providence, R. I., on May 7, the office of general manager was created, and H. H. Shepard, who, for several years past, has so successfully filled the position of general selling agent of the company, was unanimously elected to fill it. Since the resignation of George Schlosser as superintendent of the factory, several months ago, that position has not been filled by any permanent appointment, though A. L. Comstock, superintendent of the factory of the American Rubber Co., has had general supervision also of the National factory at Bristol. It is understood that, in his new capacity as general manager, Mr. Shepard will have an assistant—not named as yet—who will act more or less in the capacity of factory superintendent. Mr. Shepard combines executive ability with a genial personality and is exceeding well liked by all who are connected with the factory, as well as by the members of the trade generally with whom he comes in contact.

H. H. SHEPARD.

UNITED STATES RUBBER CO.

THIS company, organized under the laws of New Jersey, has filed a certificate with the commissioner of corporations of Massachusetts, under the law relating to foreign corporations doing business in the latter state, embodying the details contained in the last annual report of the treasurer.

At the annual meeting of the stockholders of the American Rubber Co., in Boston, on June 4, the following officers were elected: President, William R. Dupee; treasurer and clerk, George P. Eustis; directors: William R. Dupee, Harry E. Converse, William H. Hill, Samuel P. Colt, Charles L. Johnson. The list is the same as last year.

THE APSLEY RUBBER CO.'S NEW PLANT.

THE new Apsley factory at Hudson, Mass., for the manufacture of rubber boots and shoes, is one of the best arranged and most complete plants of the kind in the world. At present the Apsley company are manufacturing 2500 pairs a day. Without additional space, however, they can easily double that ticket. It is not their wish, however, to grow too large. Having put in the best mill equipment possible, and built an ideal plant, it is Mr. Apsley's ambition to make the best goods possible, and thus find the best market. The new goods will bear the brands "Apsley" and "Hudson."

A NEW WRINGER COMPANY.

THE Dayton Roll and Wringer Co., Limited (Dayton, Ohio), are a new concern, though the men composing the company are not new to the business. The general manager, G. H. Jantz, has been in the wringer business twenty years, eighteen of which were spent in the service of the old Bailey Wringer Co., and their successors, the American Wringer Co., in which

he held latterly the position of assistant general manager, which he resigned. H. G. Anderson has been fourteen years in the trade, first with the Empire Wringer Co. and later with the American Wringer Co., where he held the office of cashier, which he resigned. Located in the central west, they are closely surrounded by manufacturers of many kinds of material which they require, and are in the heart of a market where a large demand exists for such goods as they produce.

PLAGUE SCARE IN SAN FRANCISCO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We have a feeling that the senseless bubonic plague scare has injure somewhat the business of San Francisco the past two weeks. As a matter of fact, there has not been a case of bubonic plague in San Francisco. The whole thing was a political move of the board of health to scare the city council into granting them $80,000 more cash to handle than it was willing to do. After the scare was started it got away from them, and where it will end now it is impossible to tell. However, this does not appertain to Rubber, although indirectly it may affect it. O.

San Francisco, Cal., June 8, 1900.

[SUBSEQUENT to the writing of this letter, the quarantine at San Francisco was declared at an end.—THE EDITOR.]

NEW INCORPORATIONS.

THE Goshen Rubber Co. (Goshen, Ind.) May 24, under Indiana laws; capital, $100,000. The organization of this company was reported in the last INDIA RUBBER WORLD.

=The Rubber Tread Horse Shoe Co. (Indianapolis), May 29, under Indiana laws; capital, $25,000. Directors: John Kattenhorn, William P. Strawmeyer, Otto Nilius, George L. Markley, Charles T. Williams.

=The Stamford Rubber Co., June 2, under Connecticut laws, to deal in rubber goods at wholesale and retail; capital, $4100. Incorporators: N. E. Alling, A. P. Mitchell, and E. L. Alling, all of Bridgeport, Conn.

=La Oxaqueña Plantation Co. (Chicago, Ill.), May 25 under Delaware laws, to buy, sell, and cultivate lands in Mexico; capital $600,000. President, George A. Smith; vice presidents John Puhl, Henry W. Schmitt, and Joseph Carolan; secretary, C. L. La Mena; treasurer, Henry Thiele. Offices, Nos. 153-155 La Salle street, Chicago. Estates, "Las Lomas" and "La Oxaqueña," both near the "Dos Rios" plantations, in the state of Vera Cruz. On the first, 10,000 rubber trees have been planted. Major John W. Ford and George E. Davis, both of whom have had experience in Mexican planting, are general manager and plantation manager, respectively, on the company's estates.

=Bay City Manufacturing and Rubber Co. (San Francisco), May 24, under California laws, to manufacture engine and pump packings, railroad and other packings; capital, $20,000. Directors: M. E. Briggs, Alameda; H. K. Moulthrop and A. J. McGovern, San Francisco; W. Fulton and E. B. Stone, San Leandro.

=The Frost Tire and Rubber Co. (East Orange, N. J.), May 7, under New Jersey laws; capital, $200,000. Incorporators: George C. Chaney, W. E. Hingston, and Charles H. Tuttle, all of No. 525 Main street, East Orange.

=The American Rubber Filling Co., May 3, under West Virginia laws; capital, $5,000,000. Incorporators: E. A. Alexander, Ignatius Weltner, Luther W. Emerson, Henry L. Smith, and Martin L. Connellan, all of New York city.

TRADE NEWS NOTES.

THE Westinghouse Air Brake Co. (Pittsburgh, Pa.) have received an order for complete air brake equipment of fourteen locomotives and forty-nine cars, from the Lima Railway Co., Limited, of Peru. It is a fact of none the less interest that the railway is owned in England. The outfit includes rubber air brake hose of American make.

=Charles R. Flint is the president of the American Ordnance Co.—manufacturers of guns, torpedoes, and projectiles at Bridgeport, Conn., and Lynn, Mass.—and J. Howard Ford, another director of the United States Rubber Co., is also a director of the Ordnance company. The latter corporation has issued a financial statement for a period of fifteen months, making a favorable showing.

=For several years prior to the death of Mahlon C. Martin, of the United States Rubber Co., according to a newspaper published in his home town—New Brunswick, N. J.—it was generally believed that he would make a liberal bequest to Rutgers College. It is stated that such really was Mr. Martin's intention, until the college athletic field was located near his home, and against his strong protest. He offered at one time to supply other grounds, fully equipped for athletics in another part of the city, but this was not accepted by the college authorities.

=W. G. Gorham, of the Gorham Rubber Co. (San Francisco), returned from a trip to Japan early in the month, and reports a very satisfactory business as a result.

=The chief of the fire department of Burlington, N. J., recommends the purchase of 2000 feet of cotton hose. The same amounts of new hose are asked for in Lynn, Mass., and Lowell, Mass.

=The Indianapolis (Ind.) Rubber Co. have obtained a permit for the erection of a power house on their premises, to cost $4000.

=Edwin B. Silliman, a dealer in rubber goods at Detroit, Mich., has made an assignment, for the benefit of his creditors, to J. Stanley Hurd, a lawyer. He has been in business twenty years, and in March last claimed a capital of $20,000. He has also a store at No. 2 Cornhill, Boston, and up to a year ago had an interest in a rubber store at Utica, N. Y.

=Henry F. Hering has been appointed manager of the New York branch of the New Jersey Car Spring and Rubber Co., at No. 10 Barclay street. Mr. Hering has made a reputation as an active, energetic, and capable salesman, and his success in his new position may be considered as assured.

=The factory of the Goodyear Vulcanite Co., at Morrisville, Pa., is being enlarged again.

=George B. McLellan, who at one time was in the rubber trade, having charge of the American Rubber Co.'s store on Reade street, New York, but who since has been interested in theatrical affairs in New York and London, was reported lately to have arrived in America in company with an English capitalist, interested in exploiting a patented "imitation rubber fiber," which is the rhea product mentioned on another page of this paper.

=Robert D. Evans, ex-president of the United States Rubber Co., is spending the summer at his beautiful shore house at Burgess Point, Beverly, Mass. He is now president of the United States Mining Co.

=Work was resumed at the factory of the Lycoming Rubber Co. (Williamsport, Pa.) on May 31.

=Thirteen of the former employés of the Colchester Rubber Co. (Colchester, Conn.), which suspended operations six years ago, met by agreement at Colchester, on May 30, and enjoyed a banquet at the Colchester Inn. They are now scattered in half a dozen states. Irving Watkinson, of the house of George Watkinson & Co., Philadelphia, was one of the number

=The Newton Rubber Works (Boston) won in the suit for damages brought against them by Edward Disabeau, an employé, instead of losing it, as was stated inadvertently in the last INDIA RUBBER WORLD.

=An official report on the capitalization of corporations formed under the laws of New Jersey and the tax paid last year by the same, includes the following items:

	Capital.	Tax.
Rubber Goods Manufacturing Co.	$22,755,900	$4887
United States Rubber Co	46,961,500	5098

=The Patapsco Rubber Co. are included in a list of New Jersey corporations declared defunct by a proclamation by the governor of that state, for nonpayment of taxes.

=The rubber plant which it was hoped by some of the citizens of Connersville, Ind., would be located in that town, is the one that is now being installed at Goshen, Ind., by the Goshen Rubber Co. The Goshen Commercial Exchange offered superior inducements for the location of the plant.

=Port Dalhousie, Ontario, has passed a by law granting a bonus of $6500 to the Maple Leaf Rubber Manufacturing Co. This is the first by law of the kind under the new law.

=The Avoca Wheel Co. (Avoca, N. Y.) use Kelly-Springfield (solid) and Clark Valveless (pneumatic) tires on their carriage wheels.

=The most interesting display of rubber vehicle tires yet made may be expected at the exhibition to be held in connection with the twenty eighth annual meeting of the Carriage Builders' National Association, in New York, October 15–20.

=The men at the head of the Beacon Falls Rubber Shoe Co. for years have been noted as progressive rubber shoe manufacturers, and this year that enterprising concern has placed on the market, in addition to their regular school line, a two-buckle, snow excluding school arctic, having all the wearing qualities of the other shoes of the line, with the additional warmth and comfort of the arctic. They are also showing a very fine line of laced lumbermen's in all the popular styles and find that these laced shoes are very attractive to trade handling that class of shoes.

=The Brooklyn Electric Tape Co., Nos. 635–637 Kent avenue, Brooklyn, N. Y., have been organized to manufacture insulating tape, under the brands "Gold Seal," "Klondike," and "Nassau"; also, hospital sheeting and piano covers. Proofing and spreading for the trade will have their special attention. They will also make a fine grade of cement for the leather shoe trade. The firm consists of C. S. Clark and S. Sukloff, both practical and experienced rubber men. Mr. Sukloff was formerly with the Metropolitan Rubber Co., at Wallingford, Conn., and Mr. Clark has had a large experience in the retail trade throughout the United States.

=The Hood Rubber Co. started a new 1000 horse power Cooper-Corliss steam engine at their factory at East Watertown, Mass., on June 14. This is in addition to the power hitherto in use in their plant, and has been made necessary by the recent addition to the capacity of their plant in other respects.

=The Diamond Rubber Co. (Akron, Ohio) have sent us a most attractive "hanger," lithographed in colors, 20 × 28 inches, advertising their bicycle tires, the brands of which this season are: "Diamond 400" (season's guaranteed), and "Clipper" and "XX" (unguaranteed). They have issued, in similar style, a hanger advertising their automobile tires. On account of the prominence of feminine figures in each of these cards they doubtless will be referred to widely as "The Diamond Girls."

=The Boston Belting Co.'s quarterly dividend No. 123—of 2 per cent.—has been declared payable on July 2.

=W. M. Perrett, for seven years connected with the sales department of the American Dunlop Tire Co., is reported to have accepted an important position with the Diamond Rubber Co. (Akron, Ohio.)

=The Tuscarora Rubber Co. will remove their plant from Akron to Beach City, Ohio, induced by a bonus of $7000 guaranteed by a committee of citizens headed by Prof. A. B. Wingate. The Tuscarora company were mentioned in our January issue as having been incorporated with $10,000 capital, but a letter to THE INDIA RUBBER WORLD from Professor Wingate indicates that this amount is to be increased.

=The Safety Insulated Wire and Cable Co. (New York) issue a neat folder illustrating their exhibit of insulated wires at the Paris Exposition and describing the same in English and French, inclosed in a letter from General Manager Leonard F. Requa, containing an invitation to visit the exhibit.

=The Boston Woven Hose and Rubber Co. declared a semi annual dividend of 3 per cent., payable on June 16.

=Mr. Leon Ekert, of the Hamburg house of Ekert Brothers dealers in American made rubber boots and shoes for ten years past, has been a recent visitor to the United States. His house handles a large line of rubbers—Canadas and Bostons—besides a good many American leather goods.

=H. C. Corson, vice-president of the B. F. Goodrich Co. and treasurer of the Akron Rubber Co., has given to the Portage Golf Club, of Akron, Ohio, composed chiefly of rubber company men, a handsome café for its club house, fitting and furnishing the quarters very handsomely at his own expense.

=Rubber Goods Manufacturing Co. common stock, on June 25, in lots of 300 to 400 shares, sold at 22¾. There was no trading in preferred.

=The directors of the American Chicle Co. have declared quarterly dividends of 1¾ per cent. on the preferred stock and 2½ per cent. on the common stock, payable July 2.

=Eben H. Paine, of the United States Rubber Co., has been spending some of the hot days at his new summer home at Marblehead Neck, Mass.

=The Candee company are receiving a great many orders for their all duck Sampson short boot, and also for a new duck vamp boot, which bids fair to be one of the most popular boots this season.

=The specialties which were added this year to the "Pará" and "Federal" rubber shoe lists are in very great demand, Mr. Paine reporting large orders for these goods.

=Selling Agent John H. Clark has been receiving a good many compliments on the all-duck and the duck vamp boots that the Meyer company are making this year. The Meyer Rubber Co. have always made an excellent duck boot, and for many years they have made a duck vamp boot, but their products in this line for the present season are considered the best they have ever sent out.

=The Manhattan Rubber Manufacturing Co. (New York) have established a branch house in Omaha, Neb., at No. 1110 Douglas street, to be conducted under their firm name.

=The New Jersey court of errors and appeals has rendered a decision supporting the contention of the corporation counsel of Jersey City, in a suit brought by the New Jersey Car Spring and Rubber Co. to recover for goods supplied for the use of the city, that the city cannot be held liable for debts contracted in its name by chairmen of committees, unless the action of the committeemen has subsequently been ratified by the town board.

=It is reported that The Dunlop Pneumatic Tyre Co., Limited, will not exhibit their tires at either of the great cycle shows in London this year.

PERSONAL MENTION.

CARDS have been received at THE INDIA RUBBER WORLD office for the marriage of Miss Helen Aline, daughter of Dr. and Mrs. G. W. Welborn, Stewartsville, Ind., to Mr. James Herbert Stedman, of Boston, on Wednesday, June 20. Mr. and Mrs. Stedman will be at home, after July 20, at School and Oak streets, Belmont, Mass.

=Mr. Bertram George Work, general superintendent of The B. F. Goodrich Rubber Co. (Akron, Ohio), was married on Wednesday afternoon, June 27, in Grace church, New York, to Miss Marion Sawyer, daughter of the late E. Thomas Sawyer, who will be remembered as having been one of the efficient heads of The Easthampton Rubber Thread Co. The wedding was a quiet one, only relatives and intimate friends being present.

=Sir Martin Conway sailed from England on June 27 for New York, en route to Bolivia, to continue there the explorations which have already contributed not a little to the world's knowledge of the sources of India-rubber.

CHANGE IN THE RECLAIMING BUSINESS.

THERE has just been incorporated, under the laws of New Jersey, The U. S. Rubber Reclaiming Works, with $500,000 capital. This is the name under which, for several years past, a most successful business in reclaiming rubber has been conducted at Shelton, Conn. In connection with its incorporation, as above stated, the company has acquired the business of the Loewenthal Rubber Co., also an important factor in the rubber reclaiming business, being founded originally under the style of Loewenthal & Morganstern, and recently reorganized as the Loewenthal company. The officers of the new corporation are Theo. S. Bassett, president; R. A. Loewenthal, vice president; Max Loewenthal, treasurer; and M. T. Rosen, secretary.

A NEW TIRE COMPANY.

THE Buckeye Tire Co., recently incorporated under the laws of New Jersey, are erecting at Akron, Ohio, on a large scale, a factory for the production of solid vehicle tires. It is understood that their output will be taken by the Consolidated Rubber Tire Co., who control the Springfield-Kelly tires.

"WHEN SOLD THEY STAY SOLD."

THE Wales-Goodyear Rubber Shoe Co. begin their new price list as follows: "'When Wales-Goodyears are sold they stay sold.' That's been a proverb in the rubber footwear trade these many years. The reason is not far to seek. From 1843, when the first Wales-Goodyears were made, to 1900, Wales-Goodyear rubbers have been honest rubbers—honest to the minutest item of material and to the smallest detail of workmanship. While they have been noted for their fit and style, they have been equally famous for their service. We have been giving special attention of late to our boots, with the result that in 1899 our boot sales showed a marked increase over any previous year. This was particularly true of our duck boot and our long boots. In our gaiter specialties—always famous for their form and finish—you will find this season still further improvements."

"CE-RE-GUM."

THIS is the name given to a new cheap material intended to take the place of hard rubber for many purposes—such as handles, buttons, etc. It may also be used in sheet form as steam packing. It is produced by a chemical process and will vulcanize without moisture in an ordinary steam heated oven and at a rather lower heat than is required for rubber. Its color before being vulcanized is nearly that of corn, but it becomes darker afterward. It is fairly strong when vulcanized, but not equal to rubber, but forms a perfect union with it. It can be rolled into sheets and molded into any desired form and readily unites when warm without using cement. The amount of sulphur used determines the degree of hardness it will attain.

UNDER the new tariff schedules of British India, imports of articles made of India-rubber and Gutta-percha are subject to an *ad valorem* duty of 5 per cent. Belting for machinery, however, of whatever material, is admitted free.

BICYCLE TIRES.—Buyers of the cheapest tires are now confined almost entirely to people who cannot, or think they cannot, afford to pay the higher price. Those who feel that they can take the opposite course almost invariably do so.—*Bicycling World.*

REVIEW OF THE CRUDE RUBBER MARKET.

THE history of the New York market for fine Pará rubber for June has been a record of almost daily fluctuations, with the net result that the level of prices at the close is about the same as at the beginning. Immediately after the first of June there was a drop to the lowest figures of the year—87 cents for new Islands fine and 89 for new Upriver—followed by a gradual advance to the end of the third week, when as high as 93 and 97 cents were quoted for the same grades. Subsequently there has been a slight lowering of values again, indicating that buyers are less urgent than sellers to do business. For those who care to study statistics bearing upon the subject it may be of interest to note that the arrivals of rubber at Pará during the past five crop years—from July 1 to June 30 following—have been as follows, the figures for 1900 being brought up only to June 25:

	1900	1899	1898	1897	1896
Tons	26,415	25,355	22,260	22,320	20,975

The visible supplies of Pará rubber on June 30 of each year (excluding Caucho) have been as follows, the figures for this year being brought up only to May 31:

	1900	1899	1898	1897	1896
Tons	3,959	2,204	1,506	2,246	1,835

It is, of course, impossible to figure, from the basis of production and supplies alone, what the future of prices is to be. There must also be taken into consideration the rate of consumption, which can never be predicted with accuracy, and the supplies in the hands of manufacturers—always an unknown quantity. July is the month during which the smallest receipts are reported at Pará, and really heavy arrivals are not reported until October. During the summer, therefore, with a normal consumption, the visible supplies are always depleted largely.

Pará, by the way, is gradually becoming, by comparison, of less importance as a source of rubber. Already a considerable quantity of Bolivian rubber is being shipped by way of Pacific

ports, and the amount gives promise of becoming larger. While this rubber does not, as yet, compare in quality with Bolivian rubber received via Para, still it has its uses, and the production there must in time have a bearing upon prices. But it is the Congo rubber which is most rapidly becoming a new factor of importance in the world's markets. The arrivals at Antwerp during the first five months of 1900 reached 6,004,409 pounds, whereas, five years ago, during the corresponding five months, only 565,602 pounds arrived. Such an increase in the production of a class of rubber having a recognized use and value cannot fail, ultimately, to make for cheaper rubber in general.

Quotations in the New York market June 28 were:

PARÁ.		AFRICAN.	
Islands, fine, new	91 @92	Tongues	60 @61
Islands, fine, old	92 @93	Sierra Leone	73 @75
Upriver, fine, new	95 @96	Benguella	66 @67
Upriver, fine, old	96 @97	Congo ball	60 @61
Islands, coarse, new	50 @51	Cameroon ball	61 @62
Islands, coarse, old	none here	Flake and lumps	46 @47
Upriver, coarse, new	69 @70	Accra flake	19 @20
Upriver, coarse, old	71 @72	Accra buttons	62 @63
Caucho (Peruvian) sheet	51 @52	Accra strips	65 @66
Caucho (Peruvian) strip	none imported now.	Lagos buttons	61 @62
Caucho (Peruvian) ball	62 @63	Lagos strips	64 @65
CENTRALS.		Liberian flake	@
Esmeralda, sausage	63 @64	Madagascar, pinky	@
Guayaquil, strip	52 @53	Madagascar, black	@
Nicaragua, scrap	63 @64	GUTTA-PERCHA.	
Mangabeira, sheet	54 @55	Fine grade	1.75
EAST INDIAN.		Medium	1.45
Assam	81 @82	Hard white	1.20
Borneo	36 @50	Lower sorts	65
		Balata	

Late Pará cables quote:

	Per Kilo		Per Kilo
Islands, fine	6$600	Upriver, fine	8$000
Islands, coarse	2$400	Upriver, coarse	4$700

Exchange 10 $\frac{3}{16}d$.

STATISTICS OF PARA RUBBER (METRIC TONS).

NEW YORK.

	Fine and Medium.	Coarse.	Total.	Total 1899.	Total 1898.
Stocks, April 30	744	106 =	850	536	322
Arrivals, May	389	180 =	569	449	453
Aggregating	1133	286 =	1419	985	775
Deliveries, May	591	199 =	790	538	498
Stocks, May 31	542	87 =	629	447	277

	PARÁ.			EUROPE.		
	1900.	1899.	1898.	1900.	1899.	1898.
Stocks, April 30	790	570	170	1870	885	910
Arrivals, May	1755	1400	1000	555	910	435
Aggregating	2545	1970	1170	2425	1795	1345
Deliveries, May	1955	1450	1067	750	650	550
Stocks, May 31	590	520	103	1675	1145	795

	1900.	1899.	1898.
World's supply, May 31 (excluding Caucho)	3959	2655	1639
Pará receipts, July 1 to May 31	25,205	24,285	24,410
Afloat from Pará to United States, May 31	233	84	
Afloat from Pará to Europe, May 31	832	449	
Afloat from New York to Europe, May 31			

In regard to the financial situation, Albert B. Beers (broker in India-rubber and commercial paper, No. 58 William street, New York), advises us:

"During June there has been a steady and easy money market, with a good demand for paper for the first half of the month, but decreasing towards the end, as a good many banks have temporarily ceased buying; rates have ruled at 4@5 per cent. for the best rubber names, and 5@6 per cent. for those not so well known."

PARA.

KANTHACK & CO. report [June 2]: "The placid course of the market has been most rudely disturbed by the rapid decline of prices at the consuming markets, and the sharp advance of exchange on this side. Both occurrences in conjunction have affected currency prices most seriously, and caused such a fall as has rarely been seen here. Although it is a fortunate circumstance that this has happened at the fag end of the crop season, its effect on local trade is very grave, and has created a situation almost amounting to a commercial crisis. The present quotations are nominally—

Pará fine,	81	cents against	87½	cents	Same time last year, per pound, f.o.b., not including shrinkage, freight, and insurance.
Pará coarse,	28½	" "	49½	"	
Upriver fine,	88	" "	94¼	"	
Upriver coarse,	50	" "	68½	"	
Caucho slabs,	42	" "	61	"	
Caucho balls,	51⅛	" "	73	"	

"Receipts in May amounted to 1740 tons, against 1350 tons corresponding time in 1899, raising the total crop receipts since July 1 to 25,190 tons, against 24,260 tons same time last year and 21,410 tons in 1898.

"Exchange advanced rapidly until reaching 9⅜*d.*, since when it has receded again, the rate closing at 9⅛*d.* for 90 days sight on London."

LONDON.

JACKSON & TILL, under date of June 1 report:

		1900.	1899.	1898.
LONDON	Pará (English tons)	—	1	1
	Borneo	117	58	59
	Assam and Rangoon	40	31	5
	Other sorts	465	394	273
	Total	622	484	338
LIVERPOOL	Pará	1674	1153	788
	Other sorts	1328	893	464
Total, United Kingdom		3624	2510	1590
Total, May 1		3952	2129	1728
Total, April 1		3104	1942	1824
Total, March 1		1917	1784	1344

PRICES PAID DURING MAY.

	1900.	1899.	1898.
Pará fine	3/8½@4/2½	4/1½@4/3	3/10½@4/
Negroheads, Islands	2/4½	2/9 @2/10	2/7 @2/8
Negroheads, scrappy	2/8½@2/11½	3/3 @3/5	3/1½ @3/2½
Bolivian	no sales	4/1½@4/3	3/11½@4/

LIVERPOOL.

WILLIAM WRIGHT & CO. report [June 1] in regard to fine Pará: "With a continued absence of American demand, and a full supply of receipts, the market has become demoralized, and prices have dropped 5*d.* to 6*d.* per pound during the month. At the close there are still sellers, spot and forward, at the decline. It is quite possible prices may go still lower, but we would point out that prices have now declined 1*s.* per pound since last February, and we cannot help thinking that present rates ought to be worth, at least to some extent, manufacturers' attention."

"*African.*—The slight improvement in the demand at the beginning of the month was not maintained, and during the latter part the market has been very dull and depressed, and sellers have had to accept considerably lower prices to effect any sales."

Marius & Levy, South American merchants, with important rubber connections at Pará, Manáos, Rio Javary, Foz de Tarucá (on the Rio Jurua), and Iquitos, have opened an office in Liverpool, in the Albany buildings, Old Hall street.

J. J. Fischer & Co., Limited, reported stocks in the Liverpool market as follows:

	Feb'y 28.	March 31.	April 30.	May 31.
Pará: Fine	228 tons	894 tons	1303 tons	1097 tons
Medium	47 "	114 "	181 "	154 "
Negroheads	194 "	353 "	492 "	419 "
African	595 "	663 "	898 "	834 "
Peruvian	46 "	210 "	206 "	256 "
Mangabeira	256 pkgs	44 pkgs	96 pkgs	289 pkgs
Pernambuco	70 "	25 "	25 "	25 "
Ceará	1209 "	1619 "	1311 "	1393 "
Manicoba	1485 "	697 "	646 "	597 "
Assaé	29 "	106 "	30 "	101 "

THE GUTTA-PERCHA MOVEMENT.

THE exports of Gutta-percha from Singapore for the first three months of 1900, as compared with the same period of former years, are reported as follows by the Singapore Exchange, the figures denoting pounds:

YEARS.	Great Britain.	Other Europe.	United States.	Total.
1900	2,600,533⅓	662,533⅓	353,600	3,616,666⅔
1899	2,053,733⅓	1,199,733⅓	338,666⅔	3,592,133⅓
1898	1,266,133⅓	665,600	895,733⅓	2,827,466⅔

It must be said that these figures are not wholly satisfactory, if for no other reason than that they indicate a larger amount exported to the United States, especially during the first quarter of 1898, than is believed to have arrived in this country. Now, however, that a record of Gutta-jeletong (Pontianak) is being kept, it is probable that a better classification of exports will exist.

Prices of Gutta-percha at Singapore from January 3 to April 11 have been as follows, the first column being the quotation per picul of 133⅓ pounds, and the second the equivalent per pound, in silver money, with exchange at about 2 shillings to $1:

	Per Picul.	Per Pound.
First quality	$430@500	$3.23@3.75
Medium	250@430	1.87@3.23
Lower	50@250	.37@1.87

All reports agree that stocks of the better grades are very slight, and that arrivals as a rule are largely sold ahead.

ANTWERP.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The next sale of rubber by inscription will take place on June 19, when 244 tons, mostly Congo sorts, will be offered. Among the more important lots will be 41 tons of Lopori; and another of 27 tons, valued respectively at 8.30 and 8.50 francs; 16 tons Upper Congo strips (8.30 francs); 15 tons Lake Leopold II (7.10 francs); 18 tons Mongalla balls (8.42½ francs); 11 tons upper Congo small strips (8.50 francs); 25 tons Aruwimi (8.20 francs); and 11 tons Upper Congo sausages (7.75 francs). Most transactions here are insignificant and confined to inferior grades—Bissaos, Conakrys, etc.—which sometimes are to be had at 40@50 centimes below valuations. C. SCHMID & CO.

Antwerp, June 7, 1900.

ANTWERP RUBBER STATISTICS FOR MAY.

DETAILS.	1900.	1899.	1898.	1897.	1896.
Stocks, Apr. 30..kilos	821,820	521,303	186,246	145,468	39,668
Arrivals in May, 1900.	445,062	220,822	79,922	115,482	72,240
Aggregating	1,266,882	742,125	266,168	260,950	111,908
Sales in May	389,256	238,775	75,905	140,184	50,968
Stocks, May 31	877,626	503,350	190,263	120,766	60,940
Arrivals since Jan. 1..	2,729,287	1,430,686	741,523	582,591	257,092
Sales since January 1.	2,143,652	1,190,676	645,723	601,094	285,006

ARRIVALS AT ANTWERP.

MAY 5.—By the steamer *Albertville*:

Bunge & Co. kilograms	49,425	
Société A B I R	46,838	
Comptoir Commercial Congolais	16,661	
Sundries	1,408	114,332

MAY 25.—By the steamer *Stanleyville*:

Bunge & Co. kilograms	71,834	
Bunge & Co. (Société Anversoise)	20,961	
Bunge & Co. (Plantations Lacourt)	5,117	
Société A B I R	4,500	
Comptoir Commercial Congolais	19,000	
Ch. Dethier (Belgika)	8,000	
Ch. Dethier (La Haute Sanga)	2,000	
M. S. Cols (Plantations Lubéfu)	15,000	
M. S. Cols (Végétaux Kassai)	16,000	
Société Coloniale Anversoise	1,000	
Soc. Coloniale Anversoise (Haut Congo)	26,570	189,932

JUNE 12.—By the steamer *Leopoldville*:

Bunge & Co. kilograms	80,000	
Bunge & Co. (Société Anversoise)	6,000	
Bunge & Co (Plantations Lacourt)	5,000	
Société Coloniale Anversoise (Haut Congo)	15,000	
Société Coloniale Anversoise (Sté Andréa)	2,800	
Société A B I R	81,000	
Comptoir Commercial Congolais	10,000	
M. S. Cols (Produits Végétaux)	15,000	
Ch. Dethier (Belgika)	13,000	227,000

IMPORTS FROM PARA AT NEW YORK.

[*All Figures Denote Pounds.*]

May 31.—By the steamer *Gregory*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	89,900	12,400	46,800	600=	149,700
Crude Rubber Co.	88,200	15,800	43,100	1,300=	148,400
Albert T. Morse & Co.	18,600	3,900	49,100	64,900=	136,500
Reimers & Co.	16,100	1,000	20,200	3,200=	40,500
Boston Rubber Shoe Co.	30,300	3,800	6,300	. . .=	40,400
George G. Cowl	12,700	3,200	2,800	600=	19,300
Edmund Reeks & Co.	1,000	100	9,200	.....=	10,300
Hagemeyer & Brunn	.....	.....	.....	7,700=	7,700
Otto G. Mayer & Co.	3,400	1,000	2,600	.....=	7,000
Total	260,200	41,200	180,100	78,300=	559,800

June 15.—By the steamer *Cearense*, from Manáos and Pará:

Crude Rubber Co.	188,400	19,700	44,000	20,500=	272,600
New York Commercial Co.	100,300	24,300	68,200	2,200=	195,000
Albert T. Morse & Co.	35,000	6,600	48,700	62,000=	152,300
Boston Rubber Shoe Co.	41,800	7,500	8,800	40,300=	98,400
Reimers & Co.	18,900	6,800	58,900	1,000=	85,600
George G. Cowl	13,900	2,500	2,600	.....=	19,000
Edmund Reeks & Co.	.....	.....	4,200	.....=	4,200
Total	398,300	67,400	235,400	126,000=	827,100

June 19.—By the steamer *Cametense*, from Manáos and Pará:

New York Commercial Co.	83,200	11,500	31,300	24,400=	150,400
Albert T. Morse & Co.	26,300	8,700	23,500	62,500=	121,000
Reimers & Co.	58,300	8,600	43,800	.....=	110,700
Otto G. Mayer & Co.	16,100	12,200	15,400	.....=	43,700
Crude Rubber Co.	20,000	2,100	8,200	.... =	30,300
Boston Rubber Shoe Co.	.....	.....	.....	16,200=	16,200
Total	203,900	43,100	122,200	103,100=	472,300

[NOTE.—The steamer *Benedict* sailed from Pará on June 17, having on board 240 tons of rubber for New York.]

PARA RUBBER VIA EUROPE.

		POUNDS.
JUNE 9.—By the *Campania*=Liverpool:		
Otto G. Mayer & Co.) Coarse)		11,200
MAY 25.—By the *Germanic*=Liverpool:		
George A. Alden & Co. (Fine)		22,500
MAY 26.—By the *Lucania*=Liverpool:		
Crude Rubber Co. (Fine)	22,500	
Reimers & Co. (Coarse)	2,500	25,000
JUNE 22.—By the *Germanic*=Liverpool:		
Otto G. Mayer & Co. (Coarse)	17,000	
Reimers & Co. (Fine)	5,000	22,000
JUNE 23.—By the *Lucania*=Liverpool:		
Otto G. Mayer & Co. (Coarse)	17,600	

OTHER ARRIVALS AT NEW YORK.

CENTRALS.

	POUNDS.	
MAY 23.—By the *Hevelius*=Bahia:		
J. H. Rossbach & Bros	5,000	
Lawrence Johnson & Co	800	5,800
MAY 24.—By the *Paraense*=Maranham:		
G. Amsinck & Co		8,500
MAY 28.—By the *Seguranca*=Mexico:		
H. Marquardt & Co	3,500	
E. Steiger & Co	3,000	
Jacobs & Allison	1,000	
J. W. Wilson & Co	500	
Tibbals & Blossom	500	
Thebaud Brothers	500	
H. W. Peabody & Co	500	9,500
MAY 31.—By the *Alamo*=Colon:		
G. Amsinck & Co	6,200	
A. P. Strout	2,600	
I. Brandon Bros	2,500	
Flint, Eddy & Co	2,100	
Crude Rubber Co	1,400	
J. Aparicio & Co	900	
D. N. Carrington	200	
Munoz & Espriella	100	
L. N. Chemedlin & Co	800	
W. Loaiza & Co	100	16,000
MAY 28.—By the *Marquette*=London:		
William Wright & Co		2,500
MAY 28.—By *El Monte*=New Orleans:		
A. T. Morse & Co		3,000
MAY 29.—By the *Allegheny*=Cartagena:		
D. A. De Lima & Co	6,000	
Gutterman, Rosenfeld & Co	1,000	
S. Samper & Co	300	
For Europe	2,000	9,300
MAY 29.—By *Hudson*=New Orleans:		
Albert T. Morse & Co		2,500
MAY 31.—By the *Strabo*=Bahia:		
J. H. Rossbach & Bros		8,000
JUNE 4.—By the *Mesaba*=London:		
Livesey & Co	3,000	
Reimers & Co	2,000	5,000
JUNE 4.—By the *Yucatan*=Mexico:		
H. W. Peabody & Co	3,000	
Luzarte & Whitney	500	
Jacobs & Allison	500	
For Europe	5,000	9,000
JUNE 4.—By the *Louisiana*=New Orleans:		
W. R. Grace & Co	2,500	
Albert T. Morse & Co	1,000	3,500
JUNE 4.—By the *Altai*=Greytown:		
A. P. Strout	3,000	
Samper & Co	3,000	
Andreas & Co	2,000	
G. Amsinck & Co	1,500	
For Europe	2,500	12,000
JUNE 6.—By the *Alliance*=Colon:		
Isaac Brandon & Bros	3,700	
Dumarest & Co	3,400	
W. R. Grace & Co	2,600	
Crude Rubber Co	2,500	
A. M. Capen's Son	1,700	
Flint, Eddy & Co	1,600	
A. Santos & Co	1,100	
G. Amsinck & Co	700	
Jimenez & Escobar	600	
Frame, Alston & Co	400	18,300
JUNE 11.—By the *Vigilancia*=Mexico:		
P. Harmony Nephews & Co	1,000	
H. Marquardt & Co	1,000	
L. N. Chemedlin & Co	500	
H. W. Peabody & Co	200	
Thebaud Brothers	500	
J. W. Wilson & Co	200	
Tibbals & Blossom	300	3,700
JUNE 12.—By the *Adirondack*=Port Limon:		
Eggers & Heinlein	1,500	
W. H. Crossman & Bro	800	
For London	2,000	3,800
JUNE 13.—By the *Advance*=Colon:		
G. Amsinck & Co	3,300	
Flint, Eddy & Co	3,000	
Kunhardt & Co	2,300	
F. Nieto & Co	1,500	
W. Loaiza & Co	1,400	
Mecke & Co	1,000	
A. P. Strout	800	
Eggers & Heinlein	700	
D. N. Carrington	700	
A. D. Straus & Co	500	
E. Steiger & Co	500	
R. G. Barthold	300	
Ellinger Bros	200	16,200
JUNE 19.—By the *Hudson*=New Orleans:		
Albert T. Morse & Co	16,000	
W. R. Grace & Co	1,500	17,500
JUNE 19.—By the *Finance*=Colon:		
W. Loaiza & Co	1,500	
G. Amsinck & Co	1,000	
F. Probst & Co	800	
Lanman & Kemp	300	3,300
JUNE 18.—By the *Orizaba*=Mexico:		
Thebaud Brothers	4,000	
E. Steiger & Co	3,500	
F. Probst & Co	2,500	
Graham, Hinckley & Co	700	
H. Marquardt & Co	700	
Jacobs & Allison	700	
J. W. Wupperman	500	
For Europe	1,500	14,100
JUNE 19.—By the *Athos*=Greytown:		
A. P. Strout	4,000	
Andreas & Co	2,500	
G. Amsinck & Co	300	
For London	1,200	8,000
JUNE 21.—By the *Origen*=Cape Gracias:		
Eggers & Heinlein	18,000	
G. Amsinck & Co	2,500	
For Paris	1,000	21,500
JUNE 22.—By the *Graf Waldersee*=Hamburg:		
Livesey & Co		5,500
JUNE 23.—By the *Lucania*=Liverpool:		
Reimers & Co		28,000
JUNE 25.—By the *Seguranca*=Mexico:		
Thebaud Brothers	1,500	
Whitman & Barnes Co	500	
E. Steiger & Co	200	
Tibbals & Blossom	200	
For Europe	1,000	3,400

AFRICANS.

	POUNDS.	
MAY 25.—By the *Germanic*=Liverpool:		
Otto G. Mayer & Co	22,500	
Reimers & Co	9,500	32,000
MAY 25.—By the *Pennsylvania*=Hamburg:		
A. T. Morse & Co	18,000	
Reimers & Co	18,000	
George A. Alden & Co	8,500	44,500
MAY 25.—By the *Peninsular*=Lisbon:		
George A. Alden & Co	43,000	
Crude Rubber Co	44,000	87,000
MAY 26.—By the *Columbian*=Liverpool:		
George A. Alden & Co	22,000	
Crude Rubber Co	22,000	44,000
MAY 26.—By the *Lucania*=Liverpool:		
Crude Rubber Co	6,500	
George A. Alden Co	6,000	
Livesey & Co	11,500	24,000
MAY 31.—By the *Majestic*=Liverpool:		
Livesey & Co	4,500	
Reimers & Co	2,500	
A. T. Morse & Co	2,500	9,500
MAY 31.—By the *Noordland*=Antwerp:		
A. T. Morse & Co		35,000
JUNE 4.—By the *Etruria*=Liverpool:		
George A. Alden & Co	7,000	
Crude Rubber Co	5,000	
Otto G. Mayer & Co	2,500	14,500
JUNE 2.—By the *St. Paul*=Southampton:		
Reimers & Co	2,500	
Livesey & Co	1,500	4,000
JUNE 5.—By the *Friesland*=Antwerp:		
Reimers & Co	61,000	
George A. Alden & Co	4,000	
Crude Rubber Co	4,000	
Joseph Cantor	4,000	73,000
JUNE 6.—By the *Oceanic*=Liverpool:		
George A. Alden & Co	4,500	
Crude Rubber Co	2,000	7,500
JUNE 9.—By the *Campania*=Liverpool:		
George A. Alden & Co	10,000	
Crude Rubber Co	10,000	
Reimers & Co	11,000	31,000
JUNE 13.—By the *Philadelphian*=Liverpool:		
George A. Alden & Co	7,000	
Crude Rubber Co	6,500	13,500
JUNE 15.—By the *Patricia*=Hamburg:		
George A. Alden & Co		8,500
JUNE 20.—By the *Westerniand*=Antwerp:		
Reimers & Co		13,500
JUNE 18.—By the *Servia*=Liverpool:		
George A. Alden & Co	11,000	
Crude Rubber Co	11,000	22,000
JUNE 22.—By the *Germanic*=Liverpool:		
Otto G. Mayer & Co		10,000
JUNE 23.—By the *Graf Waldersee*=Hamburg:		
Albert T. Morse & Co	15,500	
George A. Alden & Co	4,000	19,500
JUNE 23.—By the *Lucania*=Liverpool:		
Otto G. Mayer & Co	20,000	
Livesey & Co	11,000	31,000
JUNE 25.—By the *British King*=Antwerp:		
William Wright & Co		16,000

EAST INDIAN.

	POUNDS.	
MAY 20.—By the *Asturia*=Singapore:		
Reimers & Co		12,000
JUNE 2.—By the *St. Paul*=Southampton:		
Reimers & Co		3,500
JUNE 9.—By the *Columbia*=Hamburg:		
William Wright & Co		5,000
JUNE 11.—By the *Buceros*=Calcutta:		
Reimers & Co	23,000	
George A. Alden & Co	13,000	36,000
JUNE 14.—By the *Clematis*=Calcutta:		
George A. Alden & Co	15,500	
Reimers & Co	8,500	24,000
JUNE 18.—By the *Loostakken*=Singapore:		
D. P. Cruickshank	11,000	
Order of S. Hern & Co., Penang	15,000	
Reimers & Co. (Pontianak)	145,000	
Windmuller & Roelker (Pontianak)	36,000	
J. W. Greene & Co. (Pontianak)	33,000	240,000
JUNE 15.—By the *Pathan*=Singapore:		
George A. Alden & Co (Pontianak)		100,000
JUNE 23.—By the *Graf Waldersee*=Hamburg:		
Livesey & Co		4,500

GUTTA-PERCHA.

MAY 28.—By the *Marquette*=London:		
Lamb Mfg. Co		5,000
JUNE 18.—By the *Loostakken*=Singapore:		
R. Soltau & Co		22,000

CUSTOM HOUSE FIGURES.

PORT OF NEW YORK—MAY.

Imports:	POUNDS.	VALUE.
India-rubber	3,336,394	$1,968,544
Gutta-percha	28,413	16,496
Gutta-jelotong (Pontianak)	258,805	8,449
Total	3,623,612	$1,993,489
Exports:		
India-rubber	19,928	$11,643
Reclaimed rubber	288,560	38,172
Rubber Scrap Imported	918,536	$54,179

[Average price of imported scrap per pound, 5.9 cents; average price in April, 6.9 cents; average in March, 5.41 cents.]

BOSTON ARRIVALS.

	POUNDS.
MAY 1.—By the *Fitzclarence*=Antwerp:	
Reimers & Co.—Africans	11,000
MAY 14.—By the *Sachem*=Liverpool:	
Reimers & Co. Africans	15,344
MAY 20.—By the *Michigan*=Liverpool:	
Reimers & Co.—Africans	16,951
MAY 23.—By the *Erna*=Porto Cortes:	
Samples—Centrals	83
MAY 28.—By the *Sagamore*=Liverpool:	
Livesey & Co.—Africans	9,907

[One arrival reported at the custom house, of 4306 pounds, was scrap rubber.]

	POUNDS.	VALUE.
Total, January	105,946	$69,329
Total, February	109,763	65,290
Total, March	81,480	55,950
Total, April	141,398	90,607
Total, May	53,285	36,126

GUTTA-PERCHA.

	POUNDS.
MAY 14.—By the *Athesia*=Hamburg:	
George A. Alden & Co	976
MAY 21.—By the *Barnesmore*=London:	
George A. Alden & Co	2,385
[Total, 3361 pounds; value, $2,677.]	

Cable Address, "Guttaperch, Toronto."

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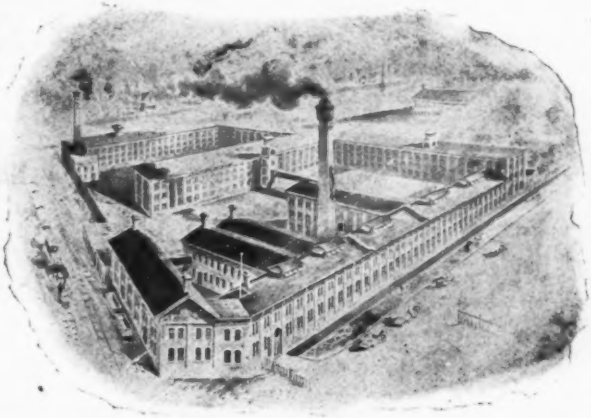

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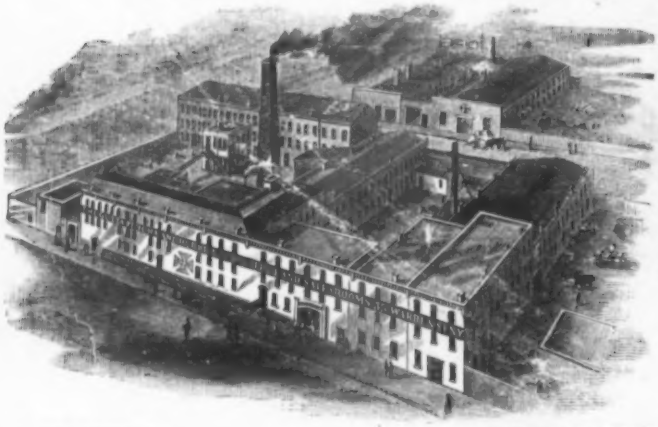

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